



PROJECT REPORT

UNIVERSITY OF NAIROBI

BAR 514: ADVANCED ARCHITECTURAL DESIGN

REDEVELOPMENT OF THE PROPOSED NAIROBI GREATOR CBD

LOCATION: LOWER HILL LUSAKA ROAD AREA

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B02/1024/2016

CHAPTER 1

URBAN ANALYSIS

CASE STUDY JIADING CENTRAL PARK

Jiading New District

155,500
Estimated future population

6,700,000 m²
of adjacent residential development
(72 million ft²)

3,200,000 m²
of adjacent commercial and other mixed-used development
(34.5 million ft²)



CONTEXTUAL MAP



At project outset, the district's master plan failed to comprehensively understand the impact of cross-traffic on the public green space. In a critical first move, the design team intervened to minimize fragmentation, reducing the number of roadways crossing the park and constructing pedestrian overpasses or underpasses where roads remained—critically preserving a holistic park experience for wildlife and pedestrians alike.

PROJECT INFORMATION

Project name: Jiading Central Park
Project location: Shanghai, China
Landscape Architect: SASAKI
Client name: Shanghai Jiading New City Development Company
Completion date: 2012
Size: 70 hectares
Services: Urban Design, Landscape Architecture, Architecture, Civil Engineering, Transportation

TRANSFORMATIONS IN THE URBAN LANDSCAPE:

The park features clear water and fishermen where dirty canals and algae blooms once proliferated. A quiet promenade takes the place of a noisy roadway.

SPATIAL ORGANISATION

Spatial configurations within the park embrace dichotomies of form and purpose—openness and privacy, monumental and intimate, active and quiet, urban and pastoral, straight and curvilinear, elevated and recessed.



The linear park is the largest urban open space in this rapidly expanding district and acts as a walkable green corridor connecting otherwise separate urban neighborhoods and integrating with surrounding landscapes.



Four major paths in the park interweave and interact with a variety of park elements in a choreographed composition, twisting and turning along the space and landforms.



FEATURES ACHIEVED IN THE DESIGN:

- Restoration of wetlands
- Stormwater management
- Rain water harvesting supplementing demands
- Energy efficiency
- Water and air quality improvements
- Native planting material that bolster bio-diversity
- Public open spaces
- Universal accessibility on all pathways

SUSTAINABLE USE OF MATERIALS:

- 100% native plant species
- Recycled asphalt and reused salvaged roofing tiles
- Locally sourced stone, wood and other materials
- Recycled glass
- Permeable paving
- Dark sky compliant lighting

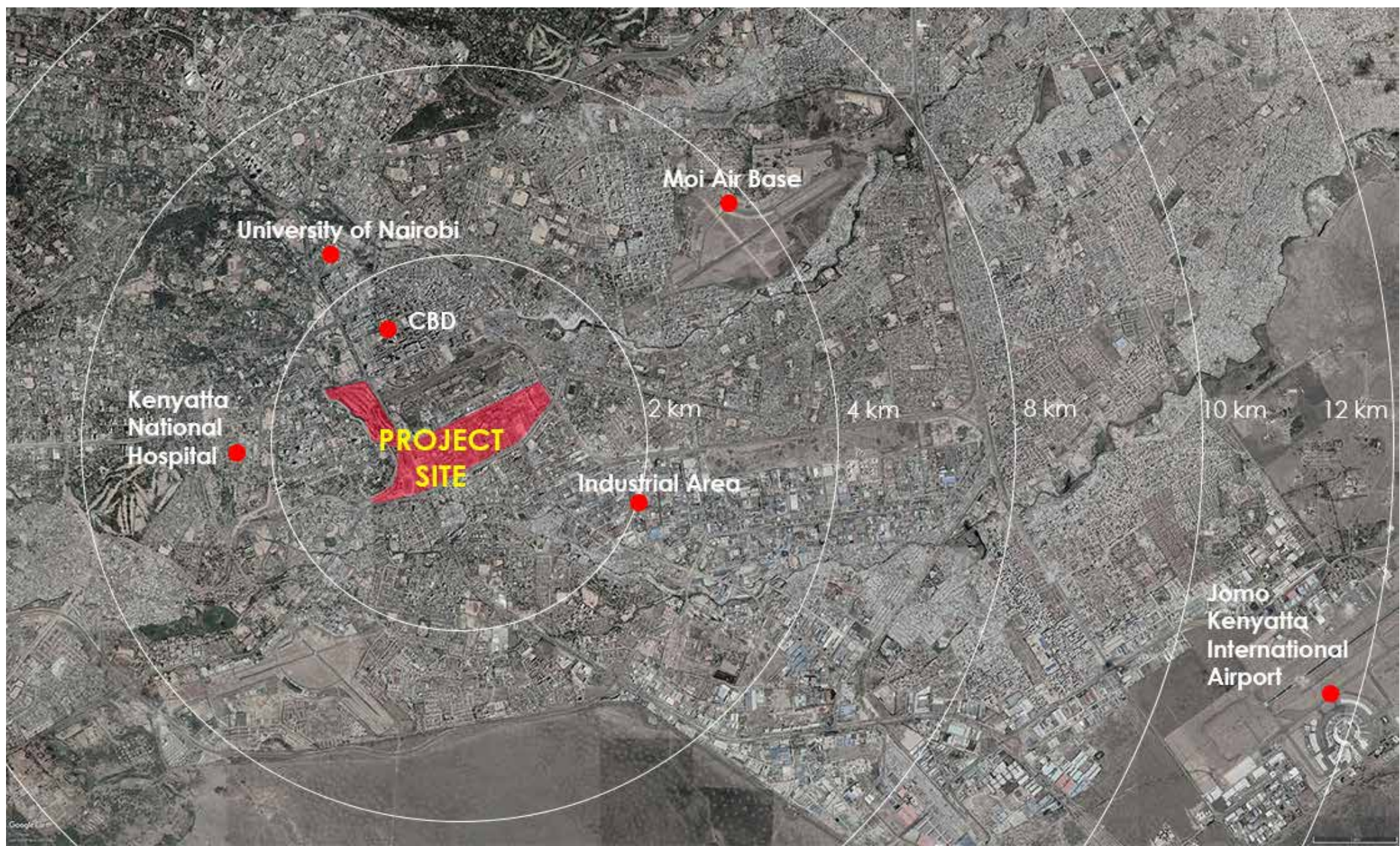


The park emphasizes the rich cultural heritage of Jiading, and integrates this with the natural setting of the site. Natural landscape elements such as floating clouds and flowing water, common themes in the paintings of local artist Yanshao Lu, are reinterpreted into modern, dynamic forms representing movement and influencing how people interact with the landscape.



The green corridor is the heart of the New City and has quickly become a new signal of vitality for the region.

Main Urban Frames



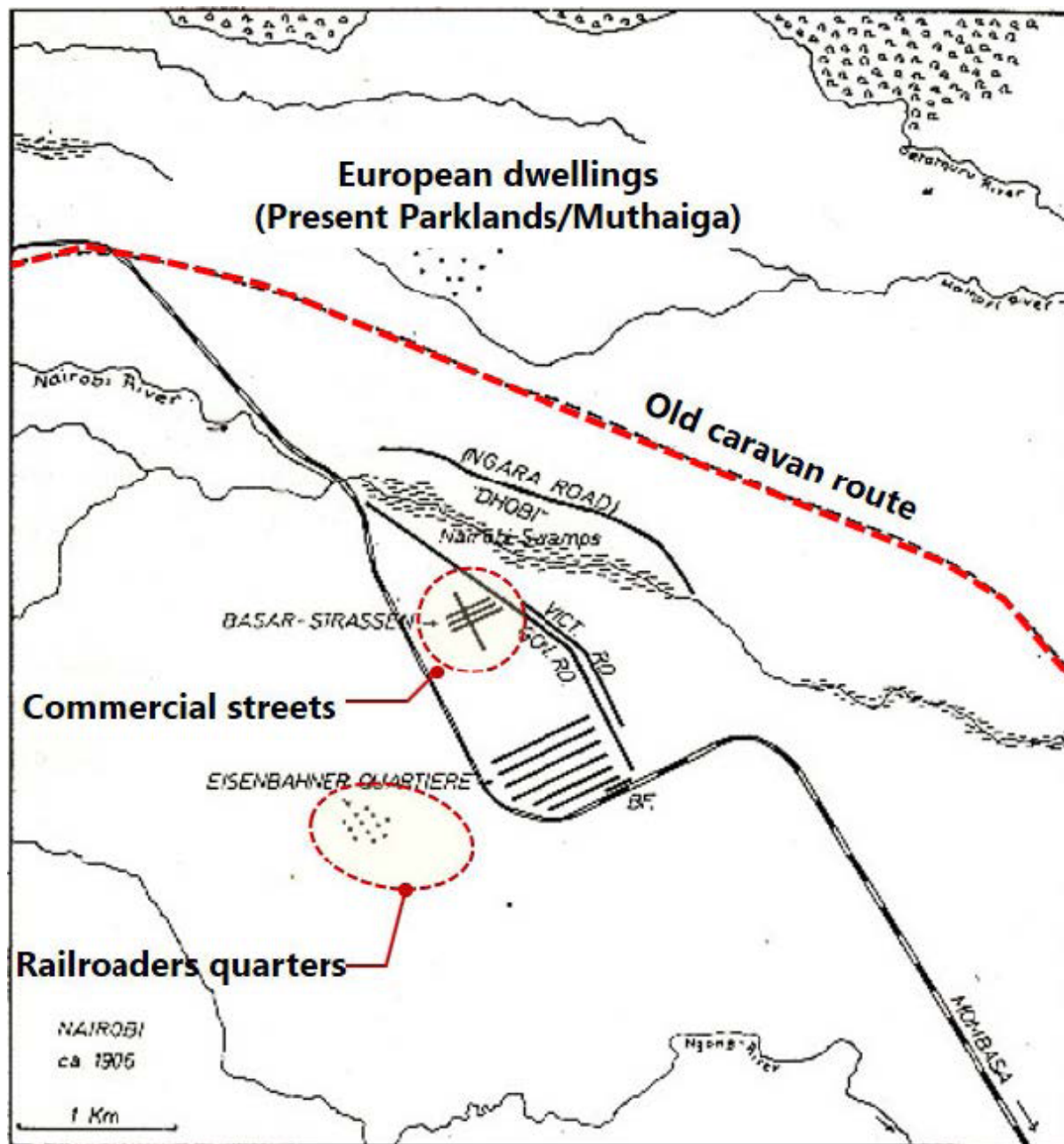
Background (Uganda Railway)

In 1899, the construction of the Uganda railway arrives at 'Enkare Nyarobe', place of cool waters. The railway engineers decide to settle in this place which eventually becomes Nairobi. The railway later reached Kisumu, and it's intended destination, Uganda.

The Uganda Railway was renamed the Kenya-Uganda Railway.

Land Aquisition

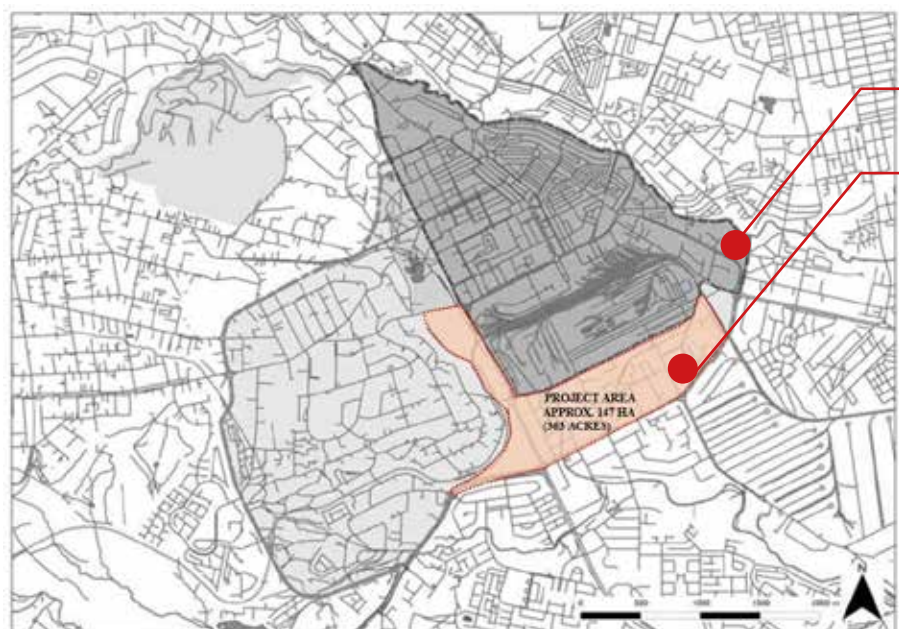
Coal powered, and later diesel powered trains were in operation on the railway. The logistics had it that one train would move from Nairobi to Mombasa once a day. The rate at which goods were being brought to Nairobi was faster than they could be offloaded, and they required a lot of storage space. The slow speed of the trains meant that they required many of them to operate, which required more railway tracks and service points in the railway yard. The large number trains, amount of goods and services, and logistics to manage meant that there had to be a large population of staff to keep all this running. This large number of staff required housing. These factors caused the railway yard to occupy a large area of land.



Nairobi - 1906

Challenges

Increasing congestion of human and vehicular traffic within the Central Business District
Rapid Urbanisation leading to the demand for quality urban space and economic generating space.
Under utilisation of the land under study compared to its current value
Equitability in resource distribution



Greater CBD
Expanded CBD

Photo Excerpt from the New Integrated Urban Development Plan

Potential

Development of the the surrounding area of CBD including the Upper Hill and area along Lusaka Road planned to be consolidated to the existing CBD to make a greater and stronger CBD as discussed in the New Integrated Urban Development Plan

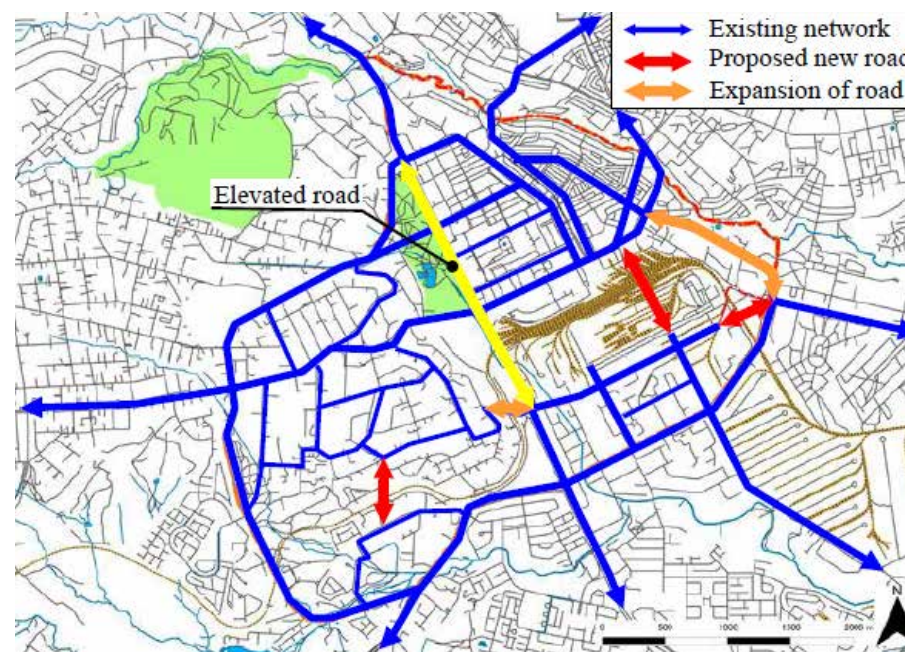


Photo Excerpt from the New Integrated Urban Development Plan

Showing Better connectivity in transport systems

Urban Design Approaches within the context

Garden City



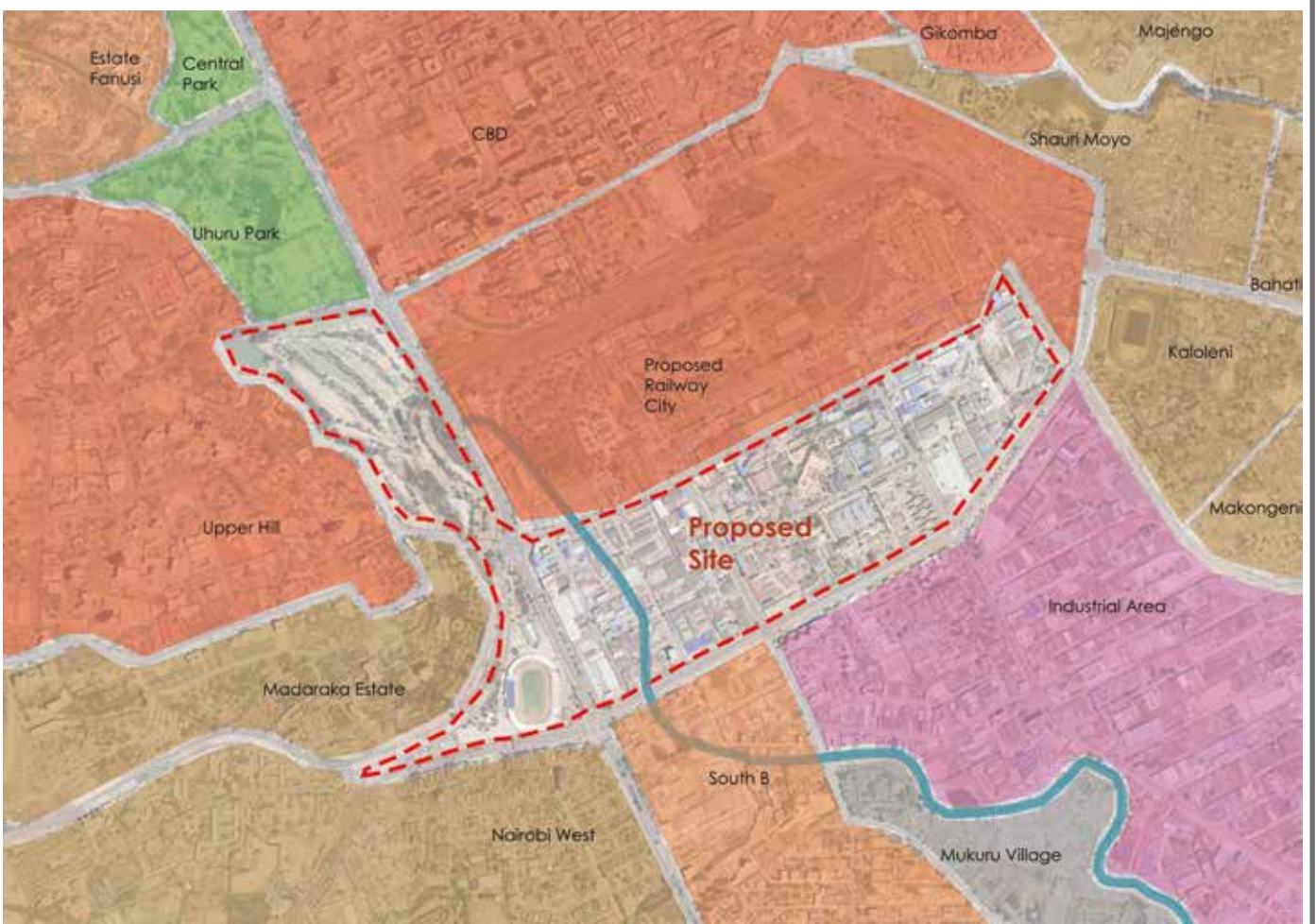
Employed in Shauri Moyo.
Urban plan is of radial arrangement

Ebenazar Howard's urban theory. The main principle behind it is the borrowed desirable aspects of country side and urban merged to yield a utopian city

Grid City



Employed in majority of the neighbourhood context, i.e The CBD
The Urban plan entails streets which run at right angles to each other forming a grid.



	Residential		Mixed RC
	Commercial		Res_slum
	Industrial		Transportation
	Institutional		Recreational
	Social facility		Forest
	Education		Agricultural/ Open Space
	Mixed CI		Water

Development of the the surrounding area of CBD including the Upper Hill and area along Lusaka Road planned to be consolidated to the existing CBD to make a greater and stronger CBD as discussed in the New Integrated Urban Development Plan

Urban Design Approach



The Grid Urban design approach has been used within the proposed site.

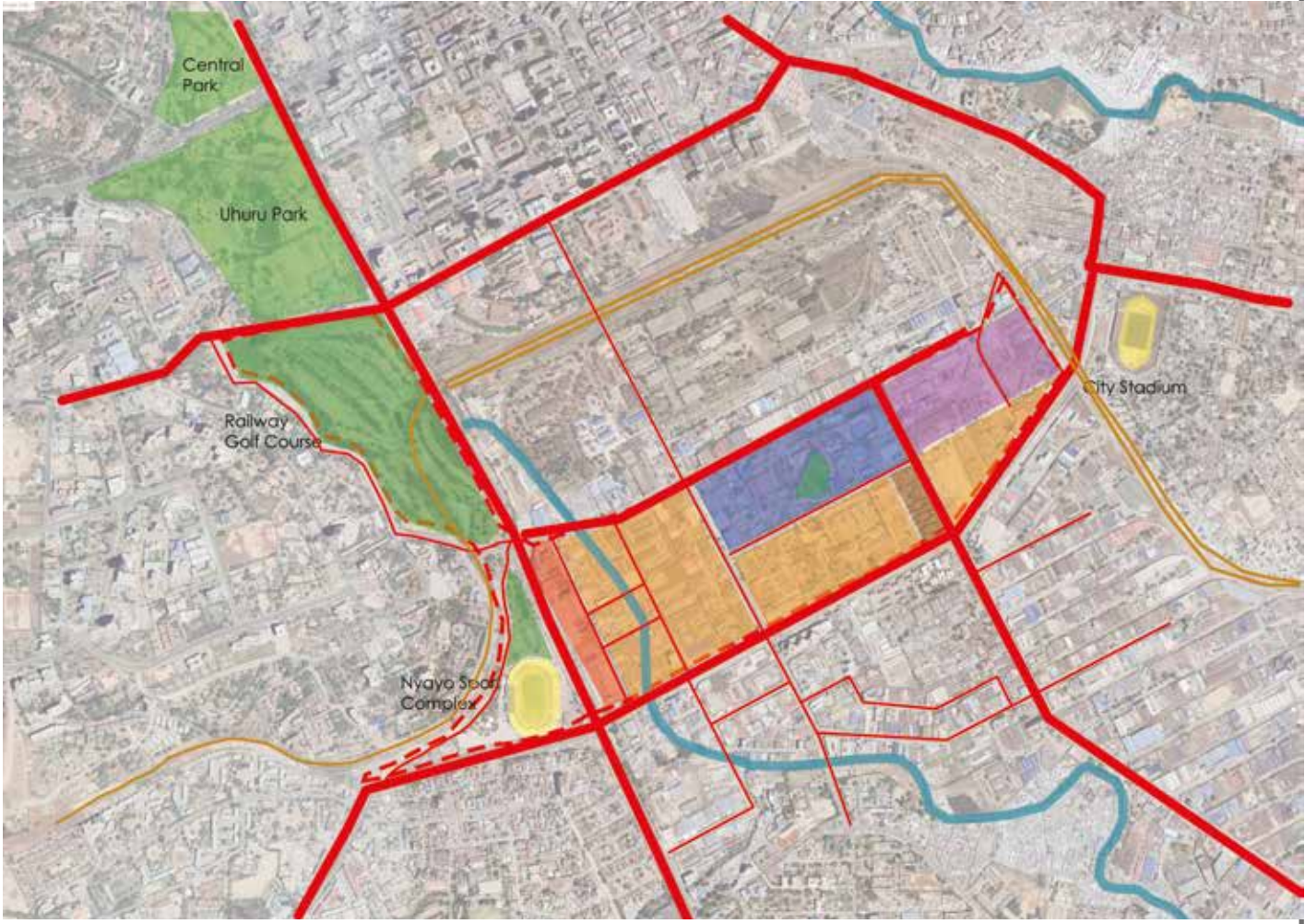
Infrastructure, buildings and zoned land uses are guided by these grids.

Nodes formed at perpendicular intersections of the streets provides opportunity for anonymous interactions.

Adopt similar urban design approach to that used within the site and in the general context.

This allows for continuity of urban fabric from the old to the new.

Urban design approaches can be used in co-currently forming a collage city.



Residential	Mixed RC
Commercial	Res_slum
Industrial	Transportation
Institutional	Recreational
Social facility	Forest
Education	Agricultural/ Open Space
Mixed CI	Water

Major Circulation Arteries



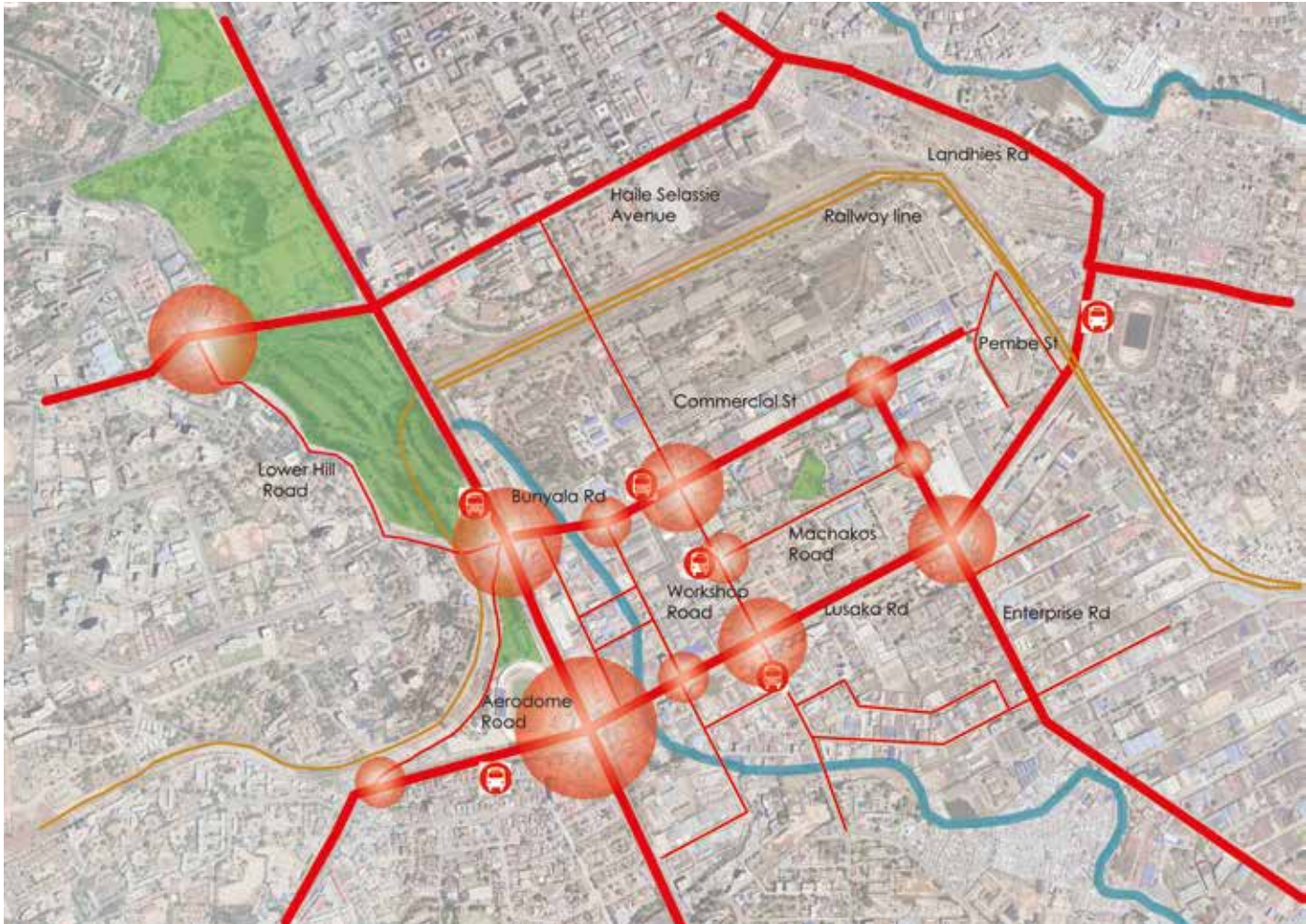
Future Projections in Transport within Nairobi



Photo Excerpt from the New Integrated Urban Development Plan Showing Classification of Future Road Network 2030

With urbanisation rapidly occurring in Nairobi, Traffic congestion has paralysed residents commute to and from work.

Recommendation;
Adopt sustainable public transportation means to ensure green sustainable urban environment and reduce on carbon emmissions.
Nodes in the grid pattern used ought to be designed to accomodate or be in proximity to lingering activities. I.e. Retail and recreational spaces



Provide for adequate space for all users and for sustainable transport means

Reclamation of derelict rail tracks

The rail track is under utilised as a means of transport, especially with the recent developmnt of the Standard Railway Currently most of the people working in industrial area from the Western frame of Nairobi (Kibera), walk along the track in their commute to work



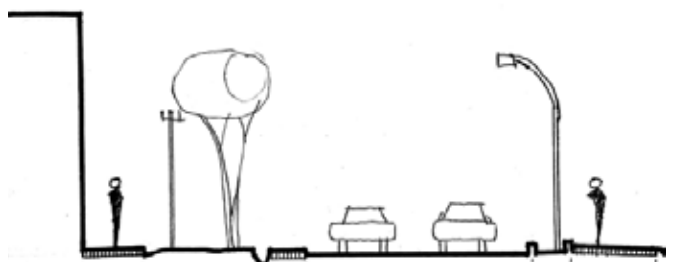
Recommendation
Case Study: New York High Line Park



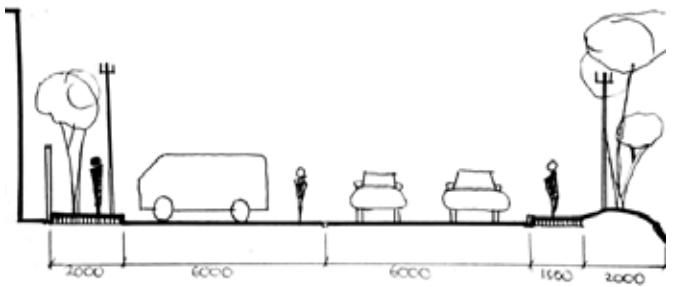
Source: Railway City Masterplan, highlighting rail tracks

Existing

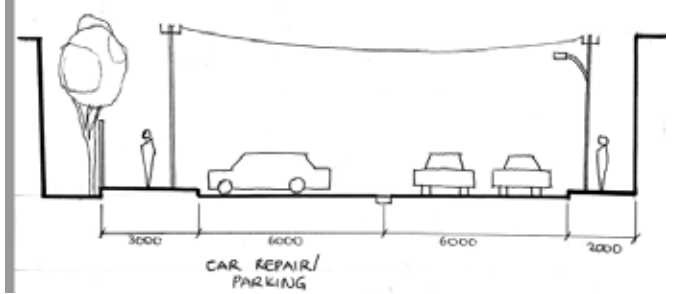
-ENTERPRISE ROAD



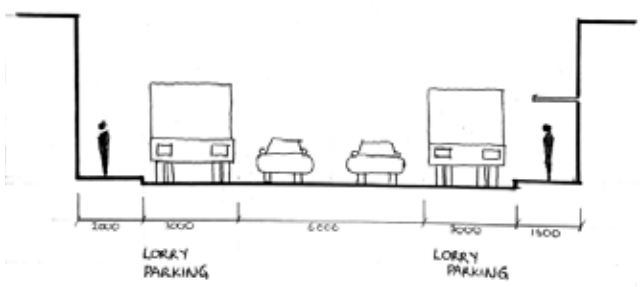
MACHAKOS ROAD



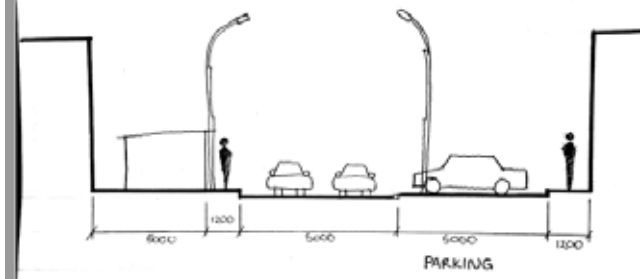
-SHIMO LA TEWA ROAD



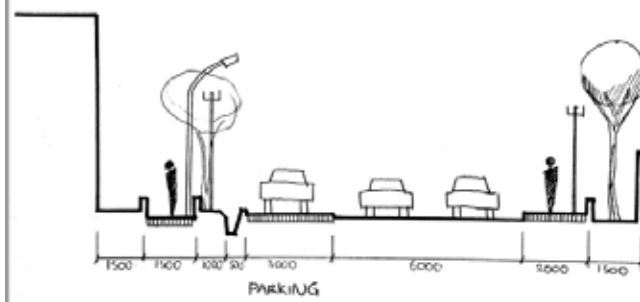
-BUNGOMA ROAD
-SOLAI ROAD



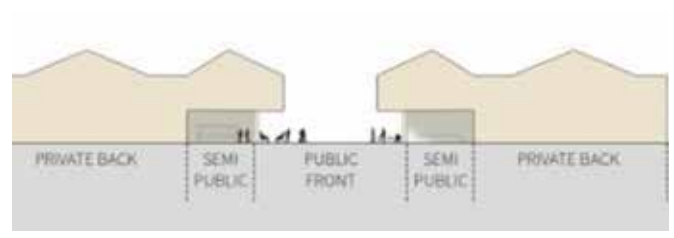
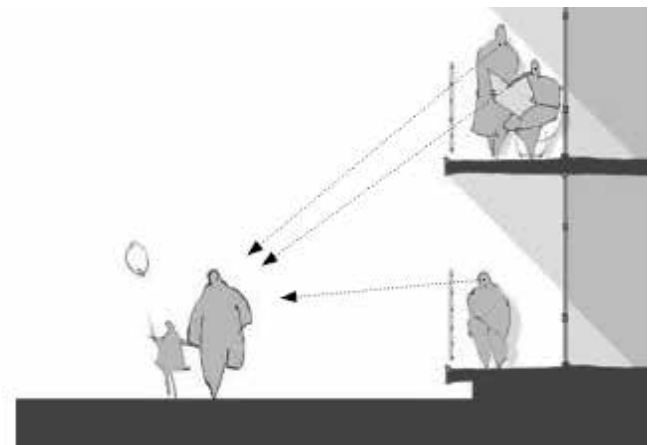
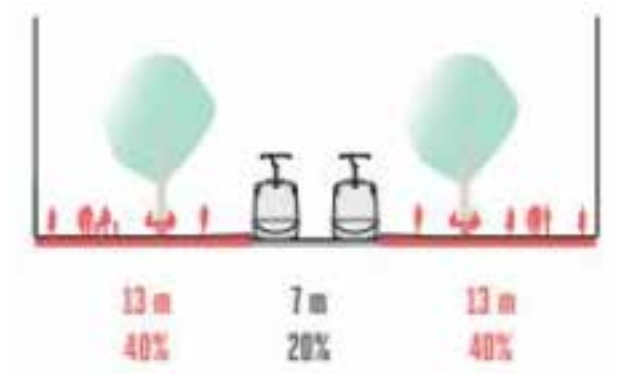
-HOLA ROAD



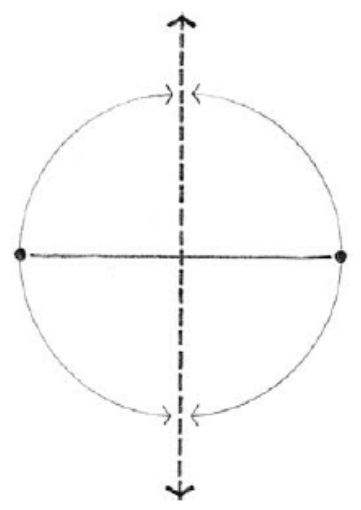
-COMMERCIAL STREET



Recommendations



Axis as organizational principle



The National Archives as a landmark within the CBD ought to have clear wayfinding to the Redeveloped Greater CBD

Recommendation to retain axis of movement along Moi Avenue to ensure visual linkage that terminates at the green space at the heart of the proposed project site

Interconnectivity of Public Recreational facilities

Proposed Redesign of Bus termini linking city stadium and Nyayo stadium to make use of commerce opportunity at these points of confluence and divergence

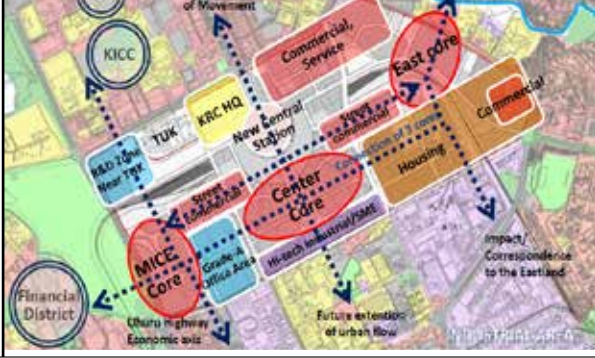
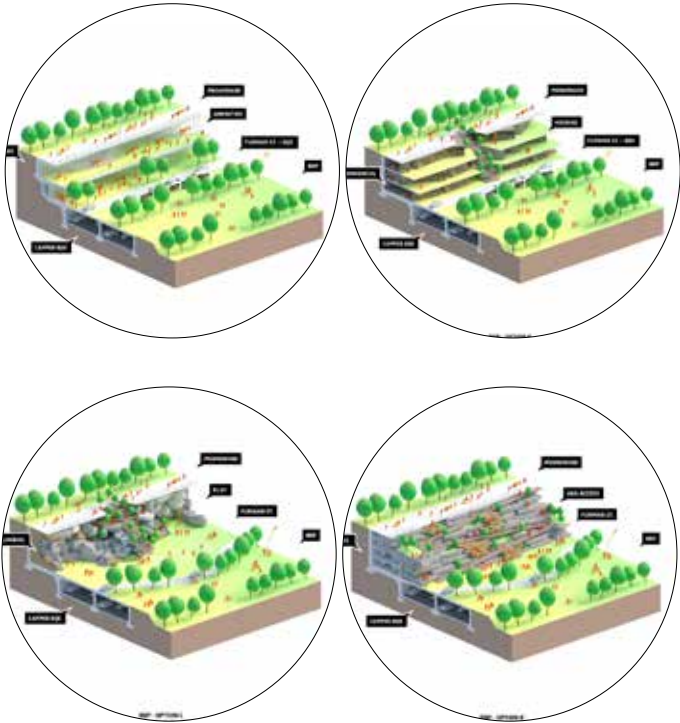


Photo excerpt from the Proposed Railway City Masterplan showing emphasis on Moi Avenue axis as route of movement

Continuity of Green Spaces

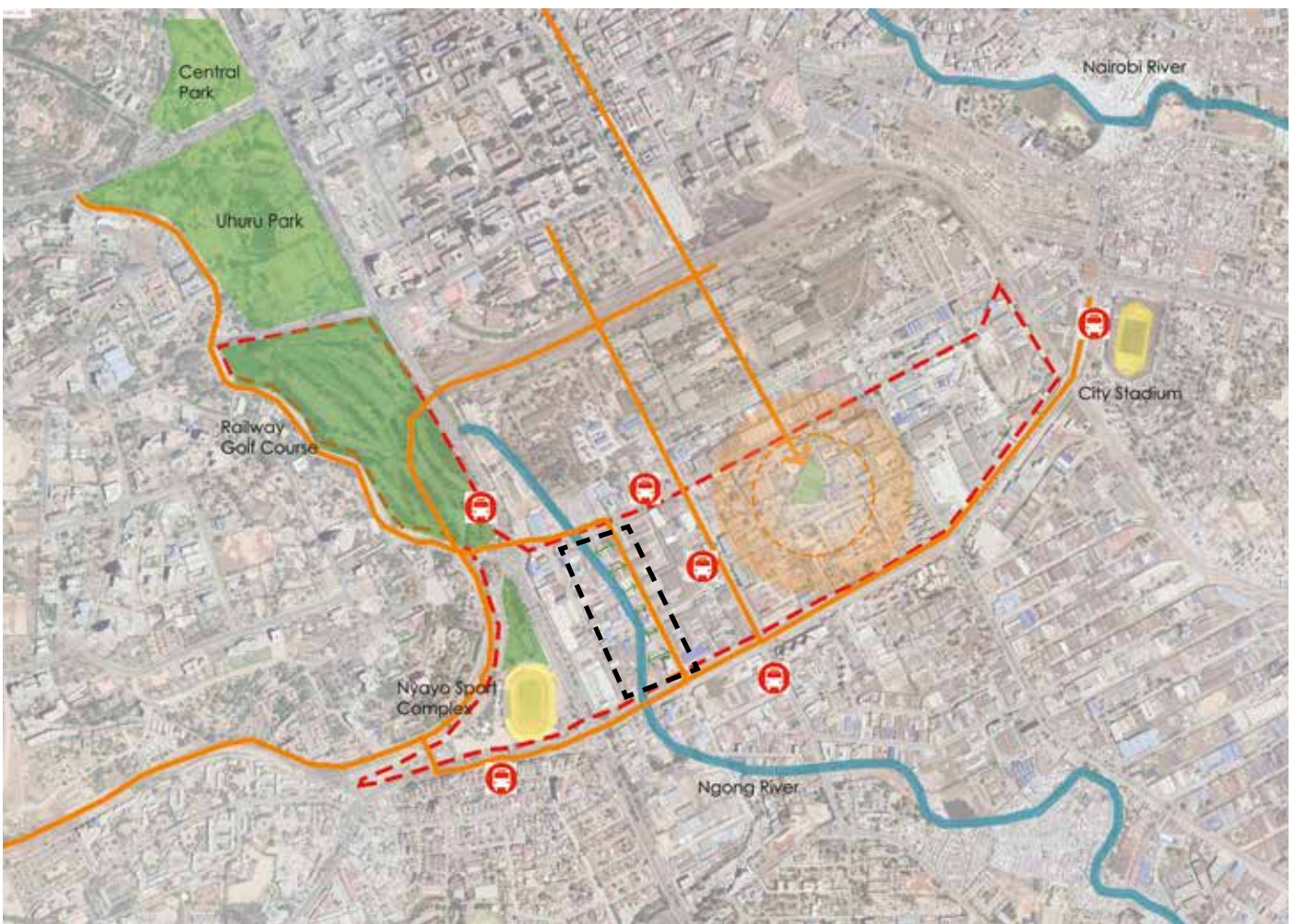
Pedestrian Friendly Linkage between Uhuru Park and Railway Golf Course achieving safety and quality of green spaces in their continuity.

Reclamation of land fill to serve as landscaping element is also recommended

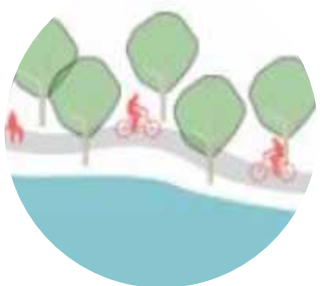


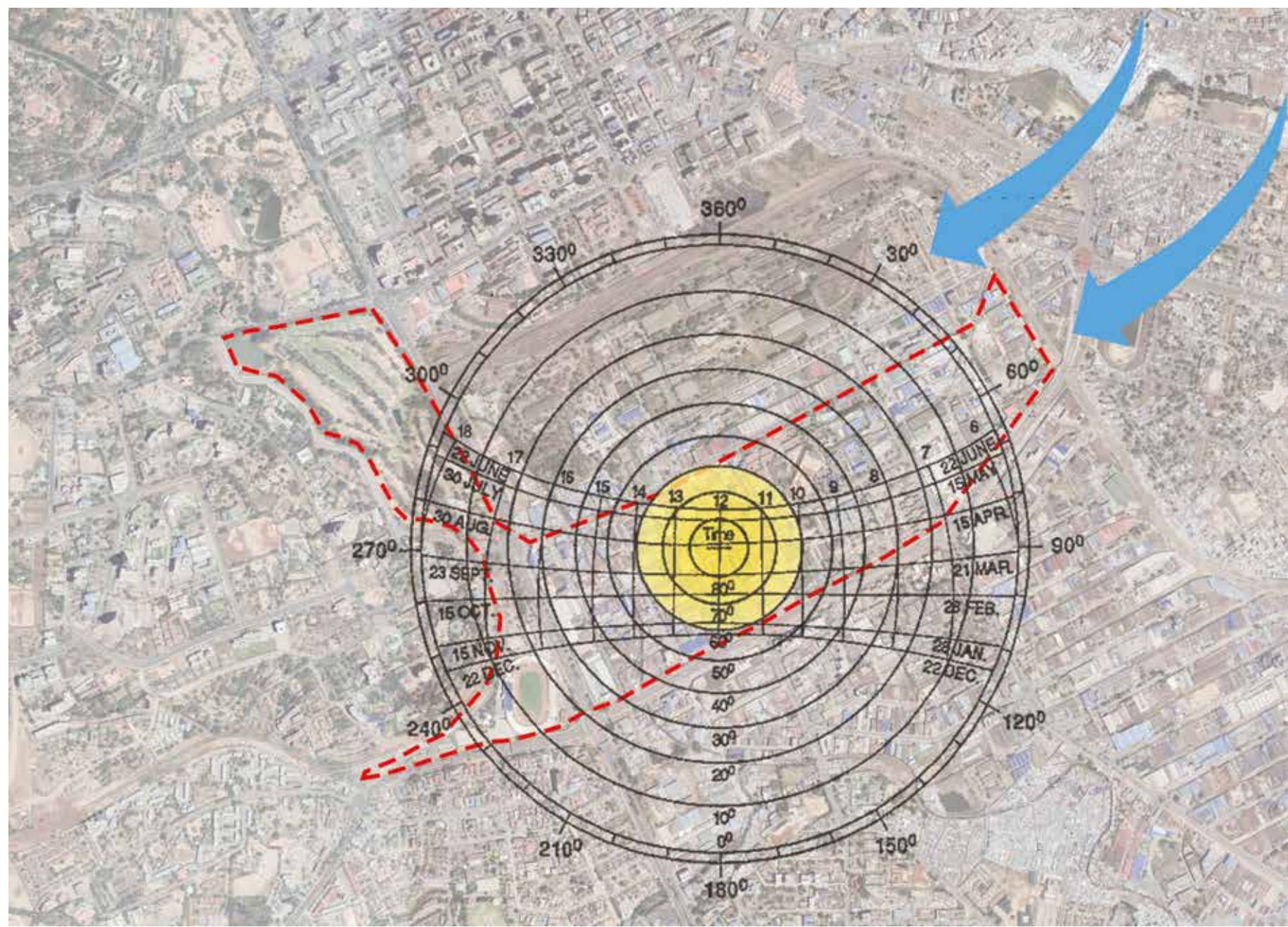
Landscaping of terrain bordering Railway golf club along Lower Hill Road

Case Study: Bjarke Ingels Group, Brooklyn Highway Landscaped Waterfront



[] The typology of buildings on either side of the Ngong river is that of industrial structures. Recommendation to open up development to the left of Shimo la Tewa Road to allow a linear park frontage, that achieves environmental conservation and green spaces within the proposed site





CHAPTER 2

URBAN PLANNING

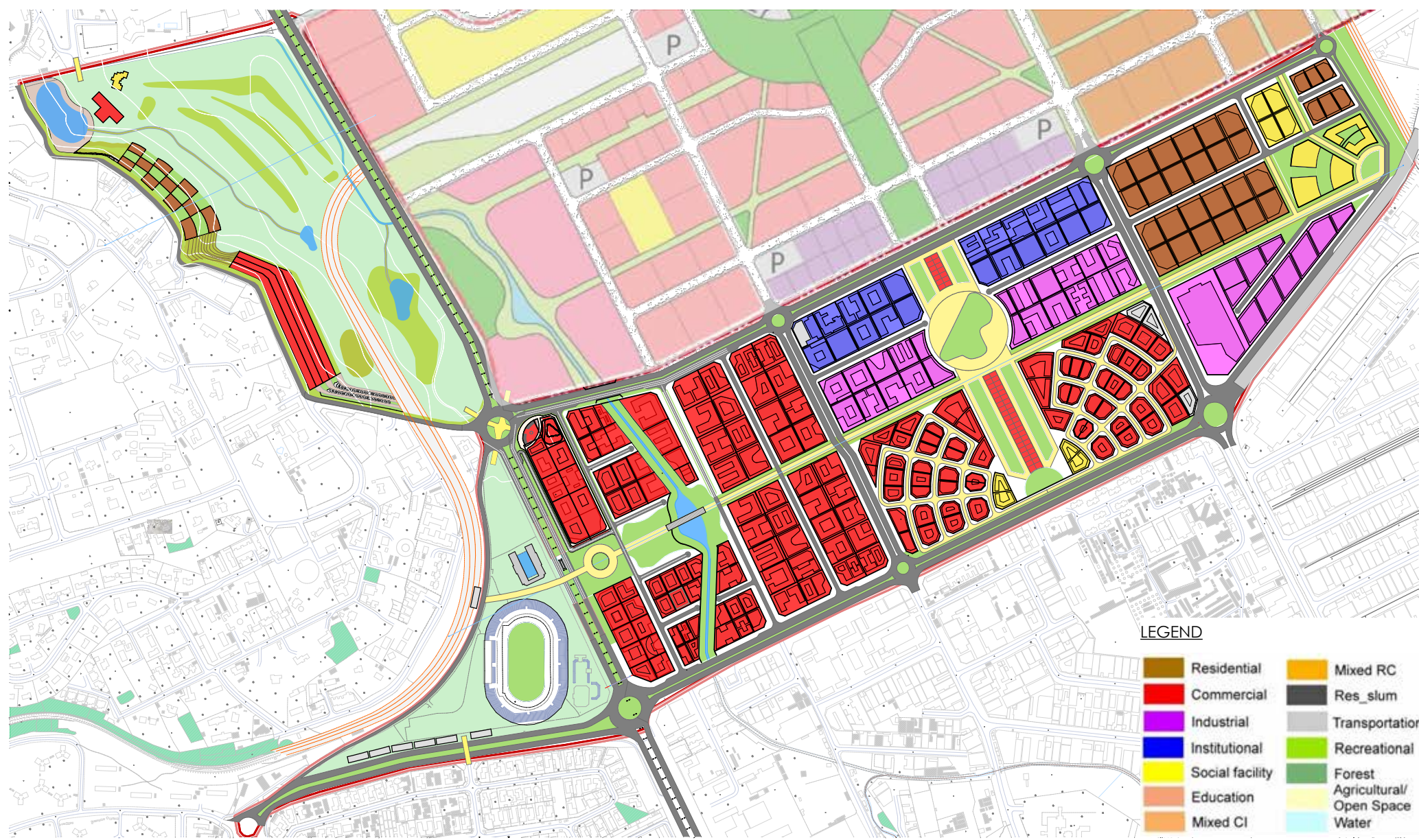


Radial Garden city concept used in designing area with current police station, improving on social integration

Monumental obelisk commissioned by adjacent Godown Art Centre used in terminating axis

Commercial Street acts as an active urban space being fully pedestrianized and lined with commerce informing the street character

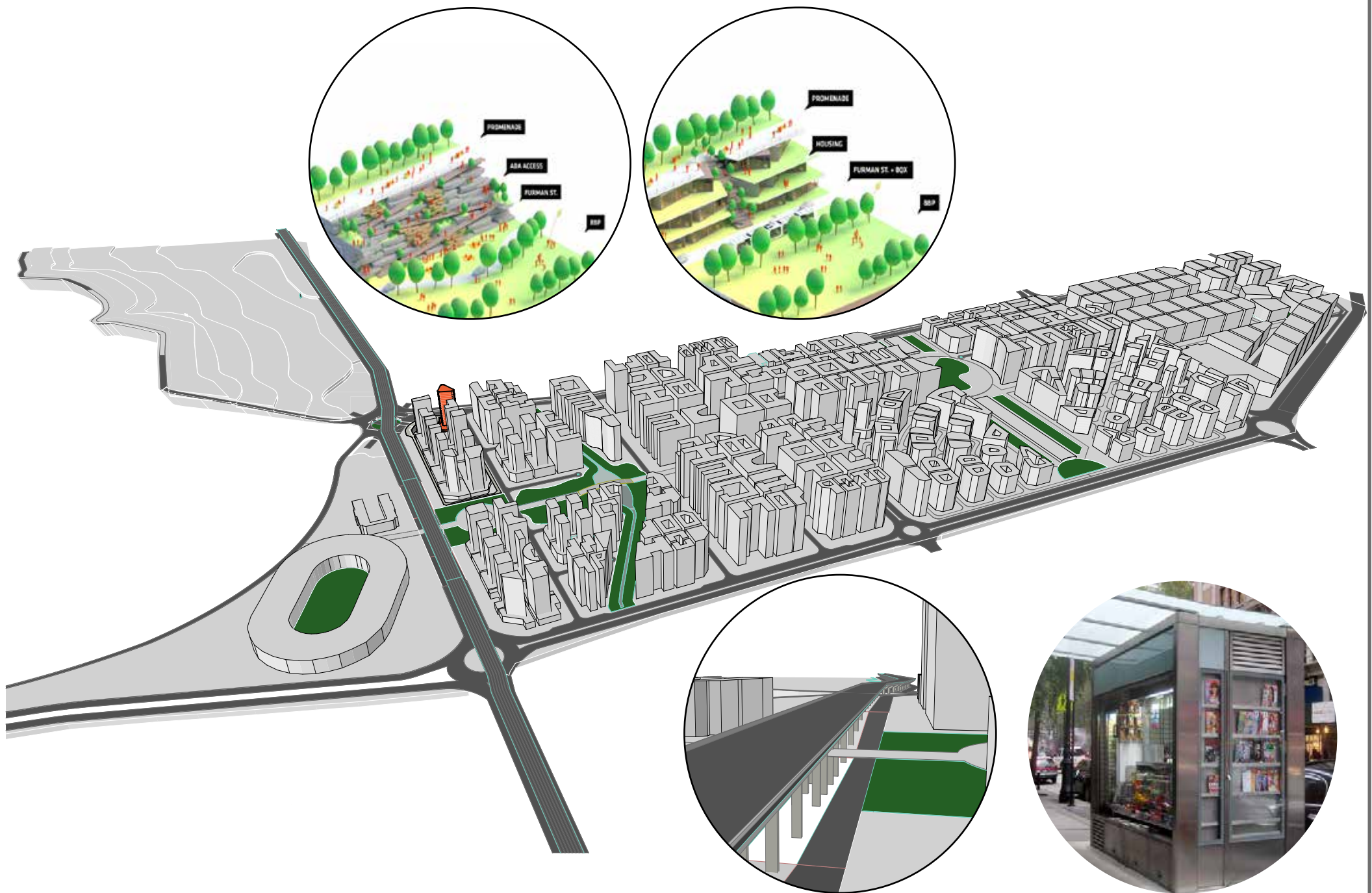
BRT station accessed from pedestrian platform Below grade Uhuru Highway allowing for connectivity and continuity of green spaces and social programs

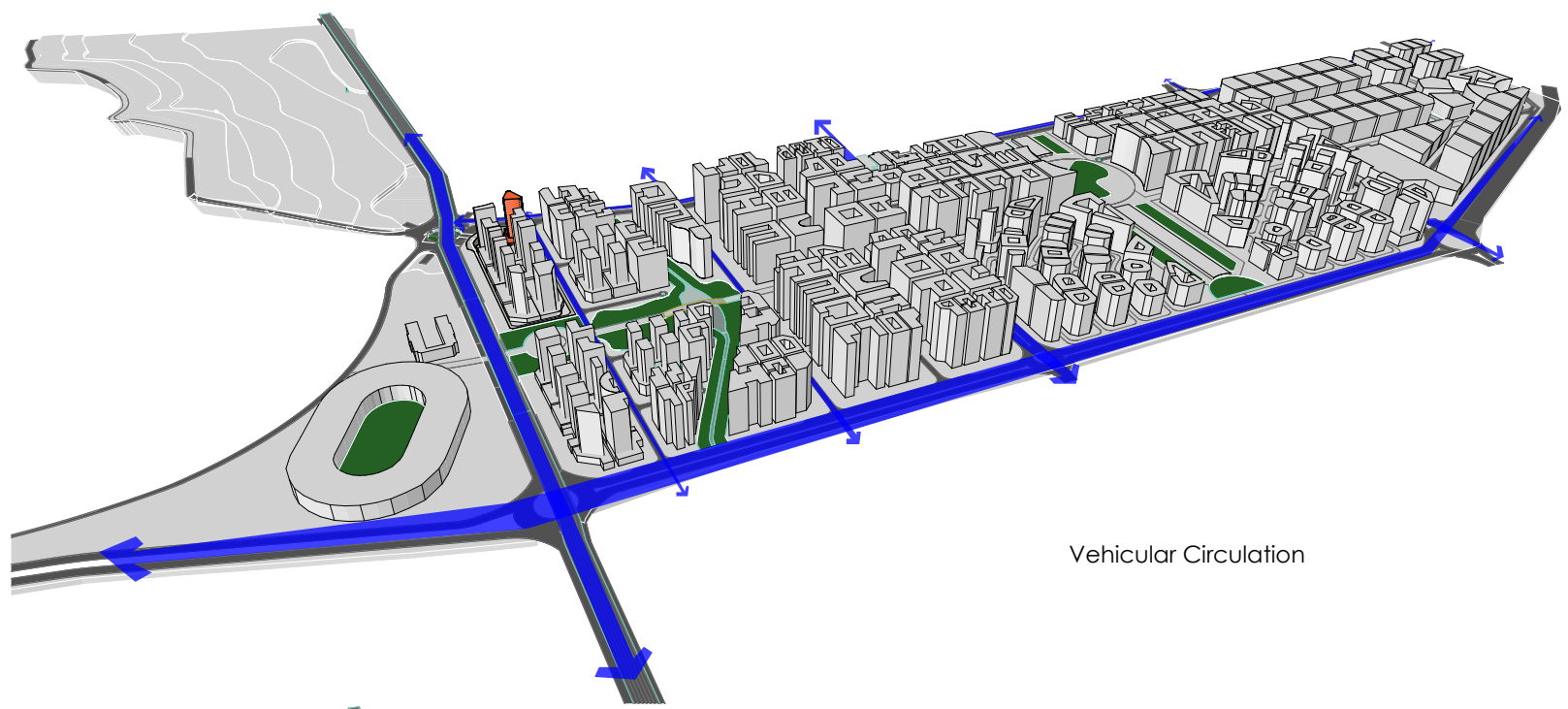


Zoning Plan

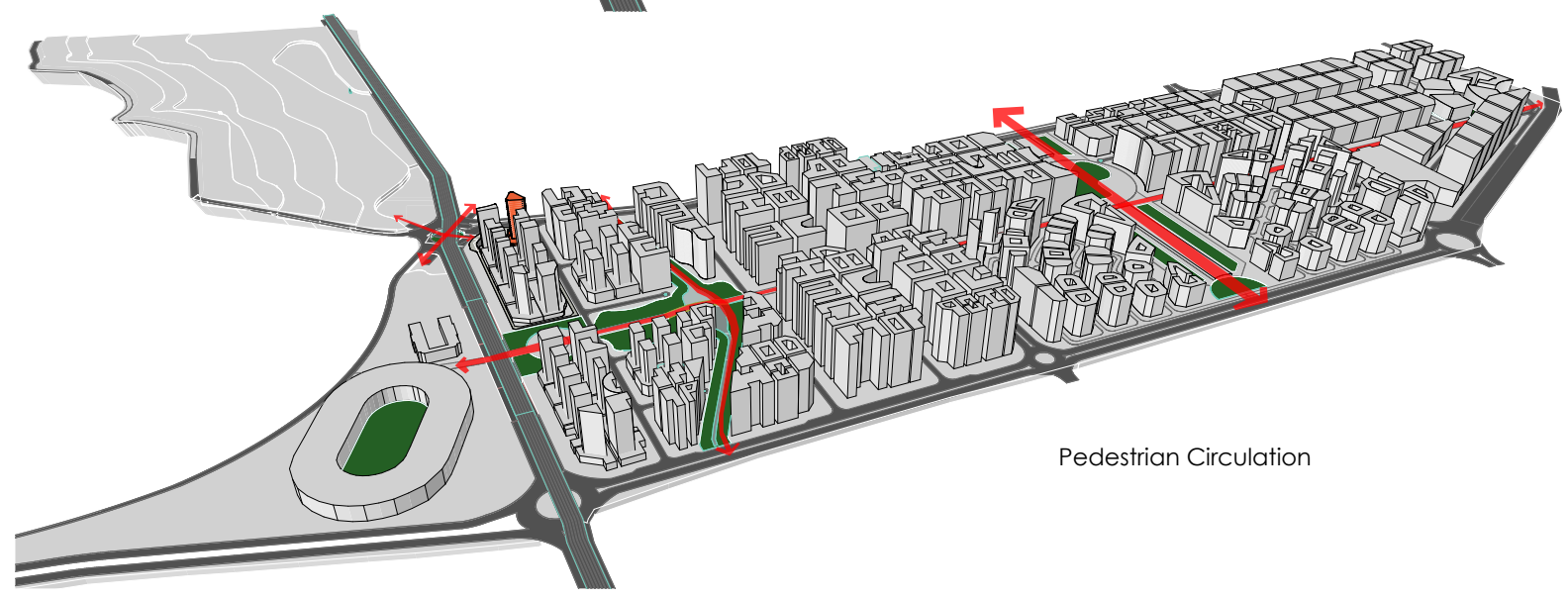
LEGEND

	Residential		Mixed RC
	Commercial		Res_slum
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Vehicular Circulation



Pedestrian Circulation

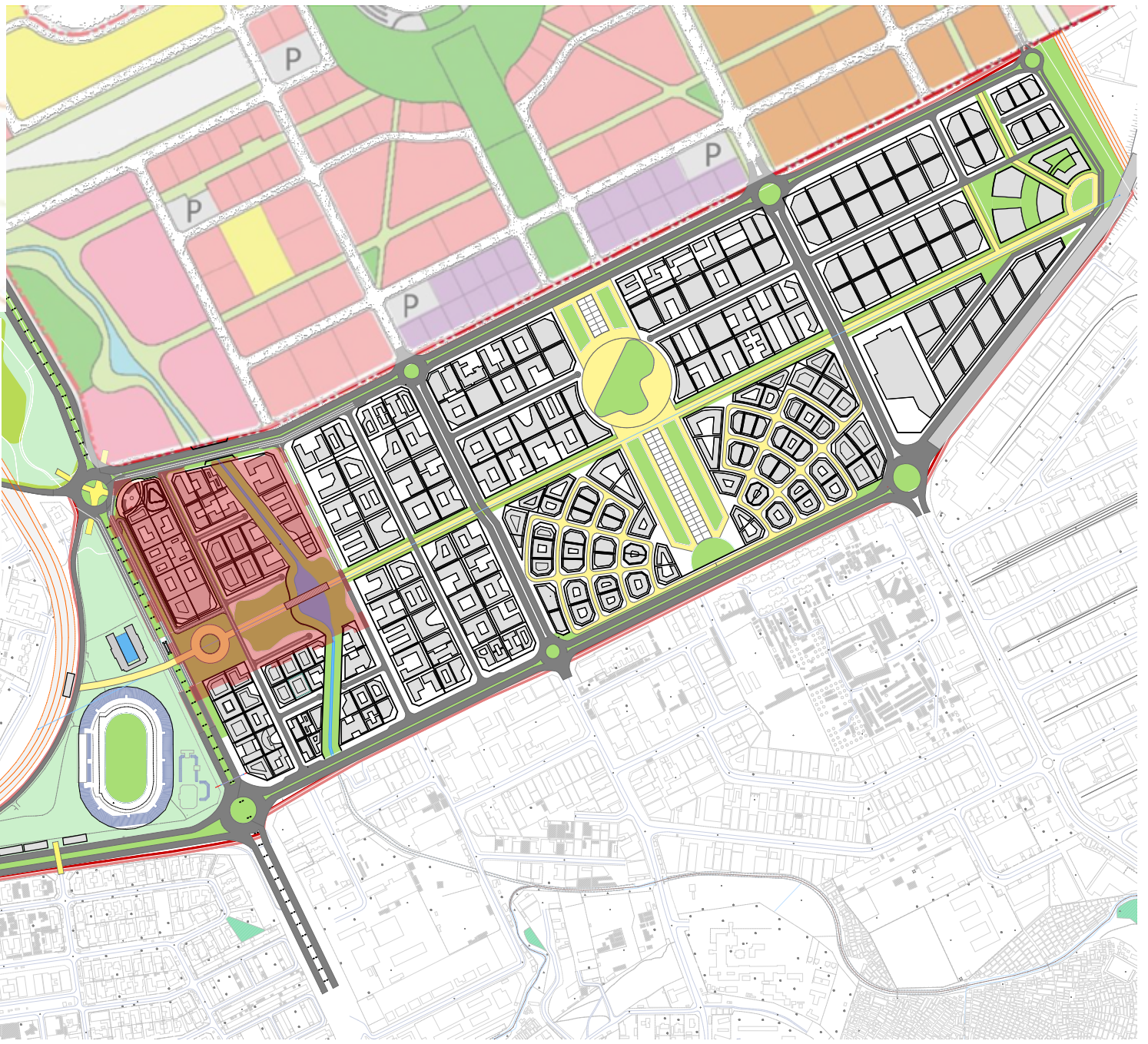
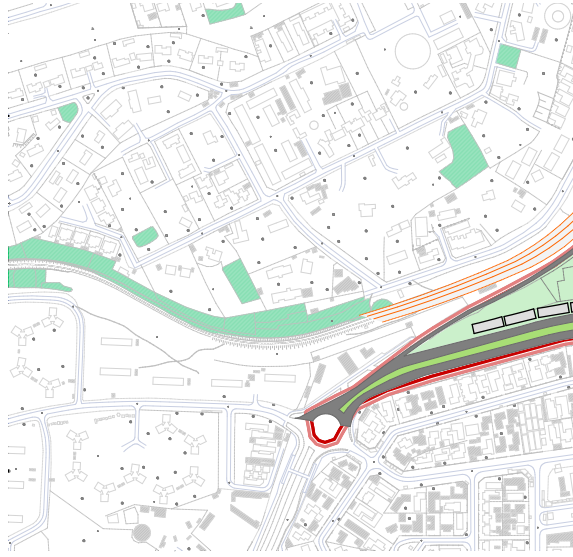
Justification on sector selection



Linkage to Western recreational core



Riparian response and pedestrian linkage





Railway station stop
transport terminus
next to Nyayo
Stadium

Recreational West
Core linkage to the
proposed Eastern
greater CBD Urban
regeneration and
proposed railway
city

BRT bus stop below
pedestrian linkage
to Nyayo stadium
recreational hub

Proposed
MUD Site
2,300m²

CHAPTER 3

MUD DESIGN

DEVELOPMENT

CASE STUDY

Project Information

Architects: BIG
Location: Katharinenpforte 6, 60313 Frankfurt am Main, Germany
Partners in Charge: Bjarke Ingels, Andreas Klok Petersen
Client: Tishman Speyer
Collaborators: Bollinger + Grohmann
Area: 65000.0 sqm
Project Year: 2018

FORM ANALYSIS



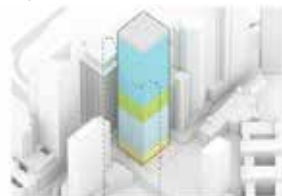
FRANKFURT SKYLINE

Frankfurt combines the classical European perimeter block with high rises to form a unique, vibrant cluster of buildings in the city center. While perimeter blocks create well-defined urban spaces, the high rises create density and offer a dynamic and changing skyline with views to the mountains around Frankfurt



MIXED USE

The tower is located in the center of this mix between tall and low. Its design reacts to the constraints and potential of the different programs housed within, including two office types, residential and public space. The influence of each specific program and height creates a silhouette that is both rational and sculptural



BASIC MASSING

The massing is first organized into a basic volume. The tower is placed inside the permitted building outline to optimize distances from the surrounding buildings. The program is then distributed and divided according to the brief



SERIES OF TERRACES

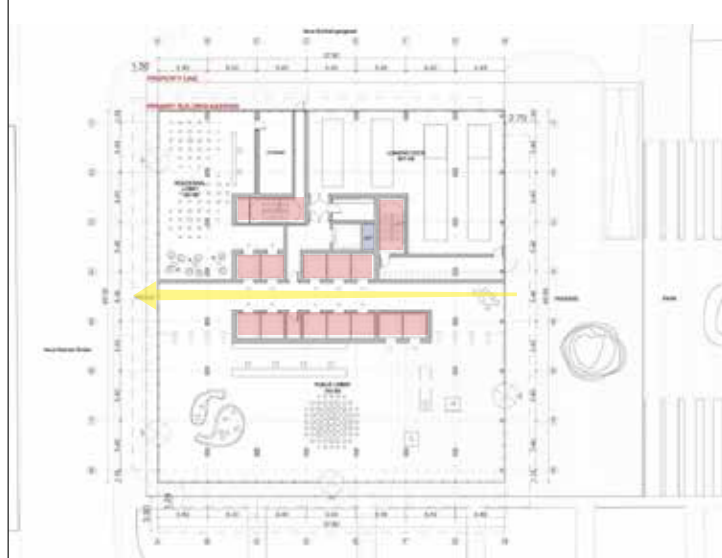
The tower is twisted at the central residential floors to create a series of terraces for housing units- cantilevering East, West and South from the main body. The remaining floors above are then pushed North, to return to the original orientation, completing the spiral movement while maximizing optimal sunlight exposure



Organized as a slender and rational stack of inhabited floors.

The tower is interrupted by two sculptural moves where the program changes

The shape that is both rational and sculptural, the skyscraper is organized as a basic volume whose floor plates "shift" to provide the "best spaces for each specific program."



Ground Floor layout

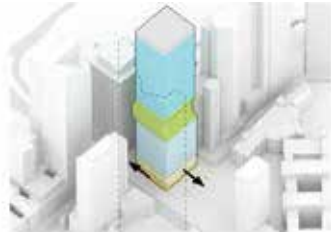


Public Floor Plan



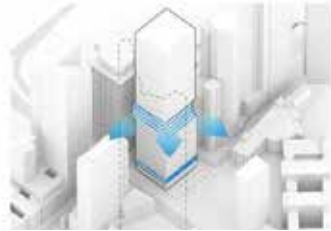
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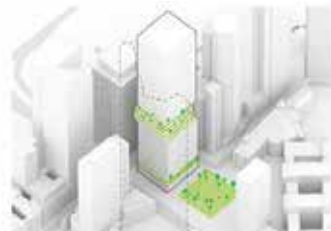
SHIFTED PUBLIC SPACES

The public program is shifted to West, creating terraces and canopies facing the park while the plates below are shifted Eastward to accommodate an arcade on Neue Mainzer Strasse



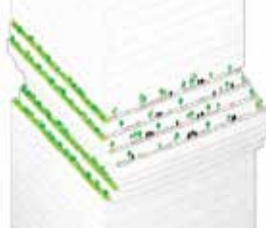
VIEWS

Residential floor plates move in two directions, creating generous outdoor space while taking advantage of expansive views in an otherwise dense city fabric



LAYERED GREEN SPACES

Terraces at each level will host different types of outdoor areas, creating a direct connection with the new park at different heights



RESIDENTIAL TERRACES

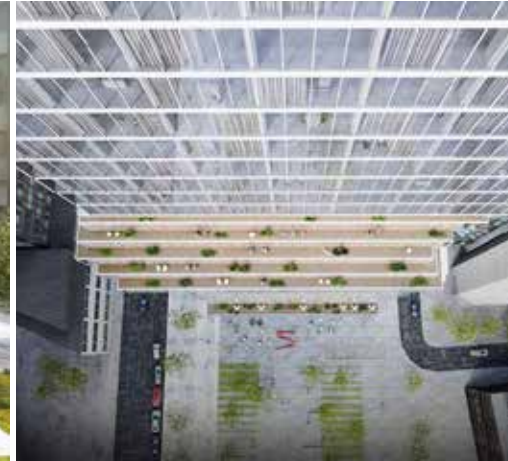
Residential overhangs accommodate strips of dense vegetation on the tower's West side, creating a natural buffer and ensuring privacy for the apartments facing the Japan Center on the South and East sides, the design creates a series of accessible terrace spaces

Ground Floor layout



At street level the floors are shifted backwards and forwards to create green terraces and canopies facing the park.

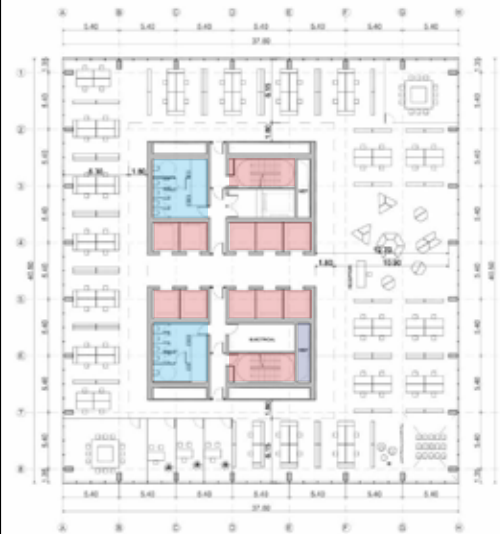
Public Floor Plan



In the middle of the silhouette, where the tower turns residential, the floor plates slide out in a spiraling movement, creating terraces and outdoor space for residents.



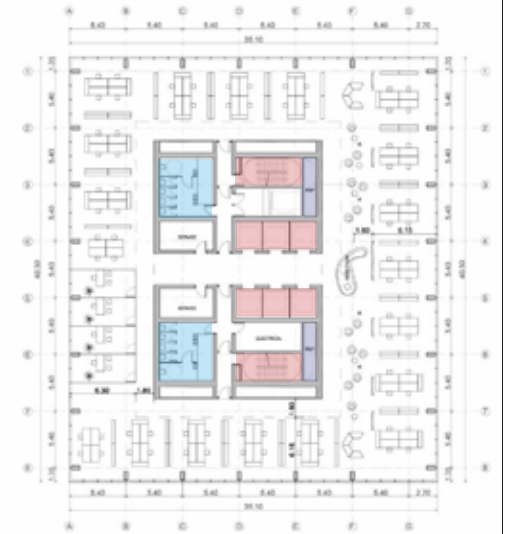
In its upper section the tower returns to a simple stack of optimized floor plates, completing its twist to rejoin the orientation of the floors below. These inhabitable movements bring human scale from street level into the skyline, embodying the unique character of Frankfurt. The tower combines these spaces for working and living for a form that is at once classical and sculptural.



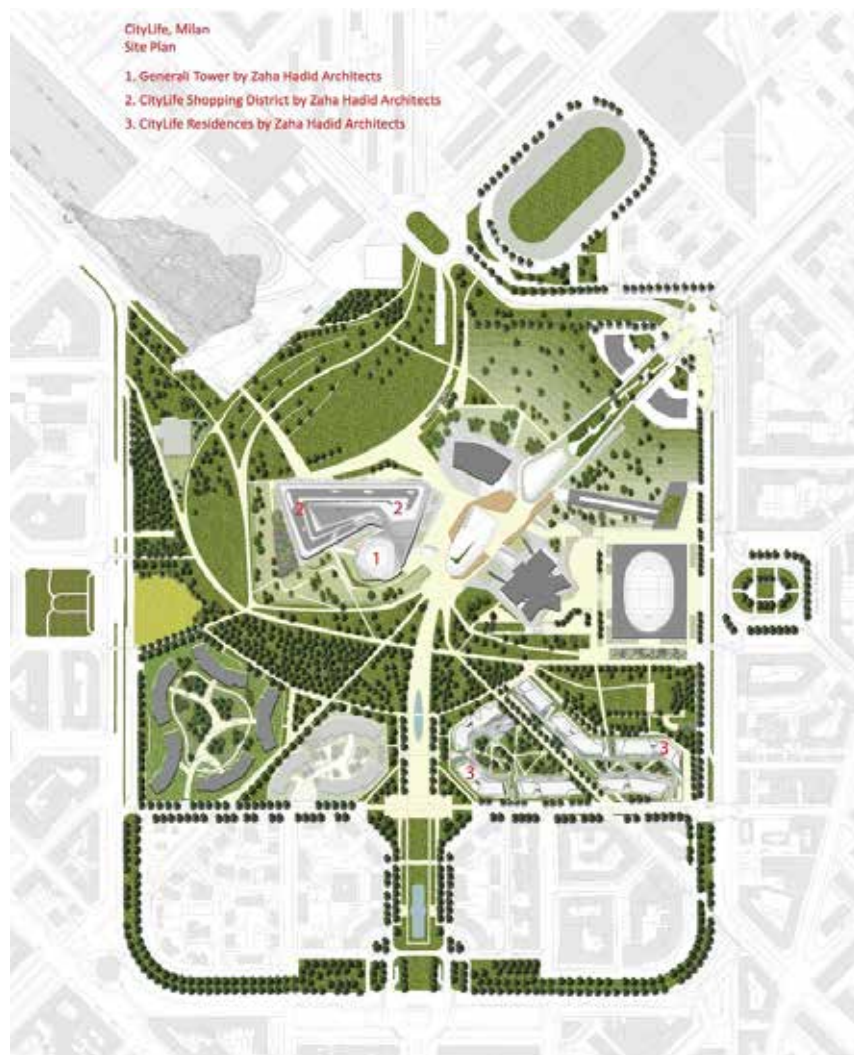
Low Rise Office Plan



Residential Floor Plan



High Rise Office Plan



Area: 66,785m²

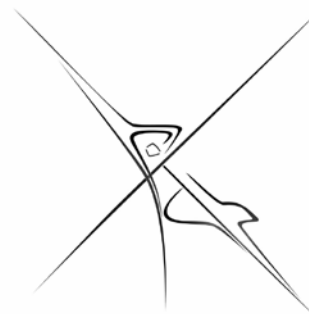
Project Objective: the CityLife masterplan that has redeveloped Milan's abandoned trade fair grounds following the fair's relocation

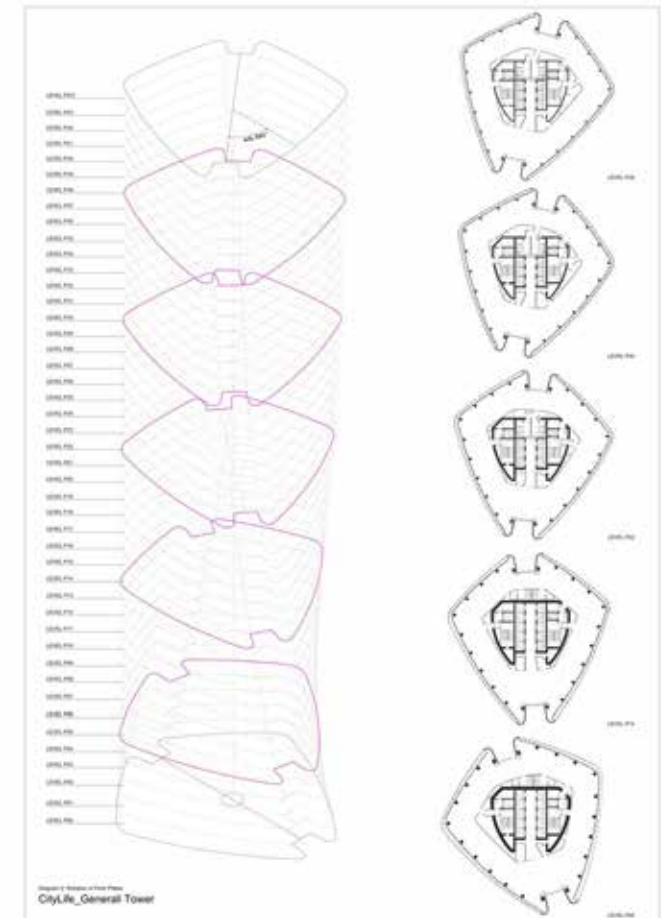
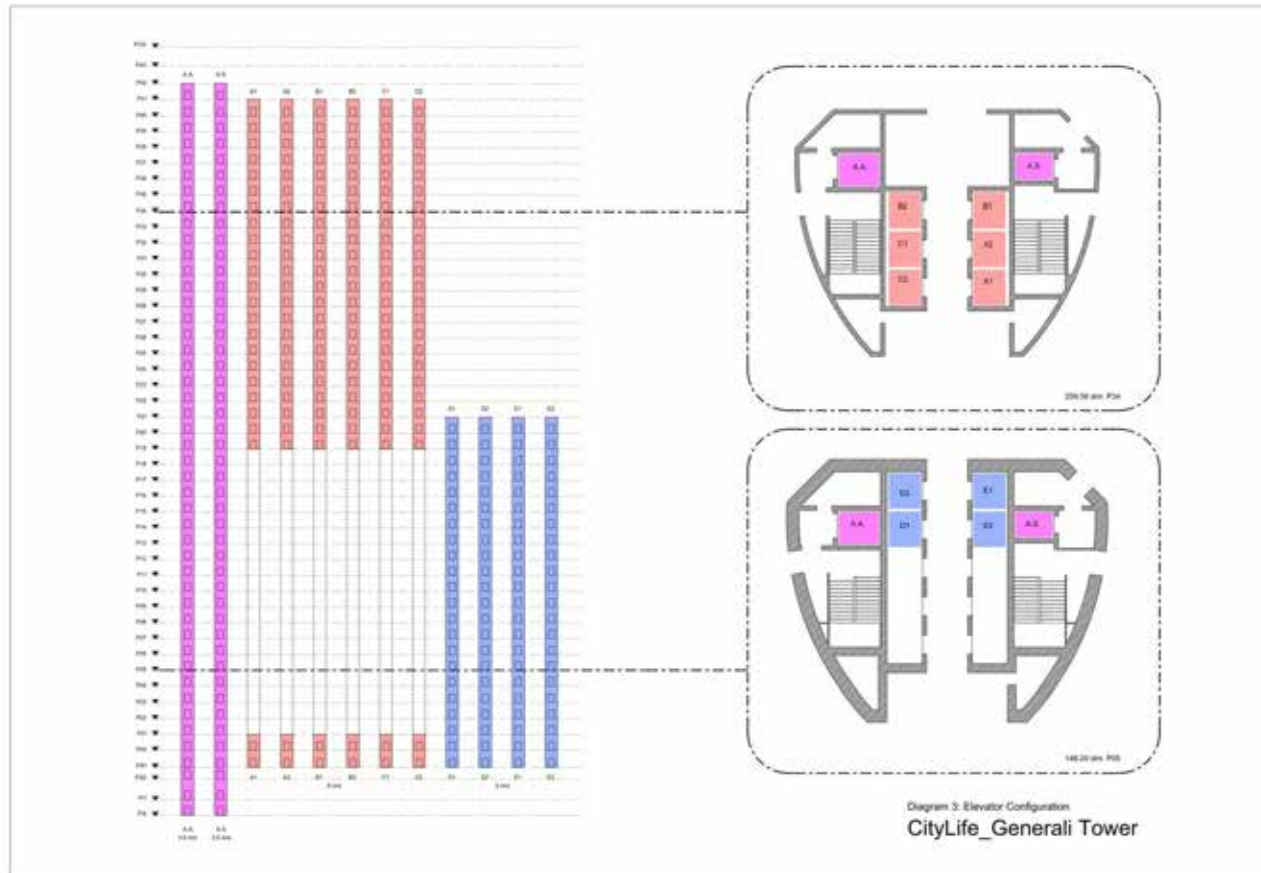


Located above the new Tre Torri station on Line 5 of the city's metro system, CityLife opens the 90-acre site to year-round public use for the first time; providing new civic spaces, public parks and residential areas, in addition to shopping districts and corporate offices.

CityLife includes 1,000 new homes, offices for more than 11,000 staff, the new 42-acre public park, piazzas and kindergarten.

Aligned at ground level with three of the city's primary axes that converge within CityLife, the 170m (44-storey) Generali Tower connects with its surrounding public piazzas and park; the curvilinear geometries of its podium defined by the perceived centripetal forces generated from the staggered intersection of these three city axes at the tower's base.





This vortex of centripetal forces at ground level is transferred vertically through the tower by realigning successive rhomboid-shaped floor plates to twist the tower about its vertical axis. This helical twist reduces incrementally with the height of each floor above street level, giving all floors a fractionally different relationship to the floors above and below.

Inclined perimeter columns follow the twisting geometry of the tower to mirror the inclined alignment of its external façade units.

Generali Tower is defined by its surrounding urban fabric to connect directly with the city.

Introduction.

The objective of the project is to develop a plot from the proposed master plan illustrating on the future projection of land use within the proposed master plan

Approach.

The Concept development and proposed master plan in general seeks to respond to the current projections within the context. This includes, the proposed elevated highway and the proposed railway city masterplan

The site selection is aims at integrating the fragmented districts within the proposed master plan, between the recreational, civic and commercial districts

Program

The program of the proposed MUD is in response to the proposed railway city, moreso on the MICE core. General trends further point to an increasing demand for spaces for retail and entertainment

Design Principles

1. Create a compact, pedestrian friendly mixed use complex
2. Provide one central area as the discernible focal point of the retail centre
3. Create a regional plaza to serve the community and connect to the system of open spaces and natural corridors.

The Brief

Plot Area= 2300m²

Ground Coverage= 1750 m²

Plot Ratio= 6

The project comprises ;

- Lower Ground Floor Restaurant
- Retail Ground Level
- 2 staggered **podium levels** consisting of:
 - Food Courts
 - Theatre
 - Bowling Alley
 - Conferencing and Exhibition Halls

The Tower comprising of:

- **Offices**, 4 per floor (for 8 floors, with 2 floors having a common terrace)
- **Serviced apartments** (Alternating as);
 - 3 Studio Units, 1 One bedroom and 2 two bedrooms (8 floors)
 - 3 studio units and 3 one bedrooms and common terrace (4 floors)

Podium Plinth Areas

- 1335m²- 1st floor
- 1315m²-2nd floor

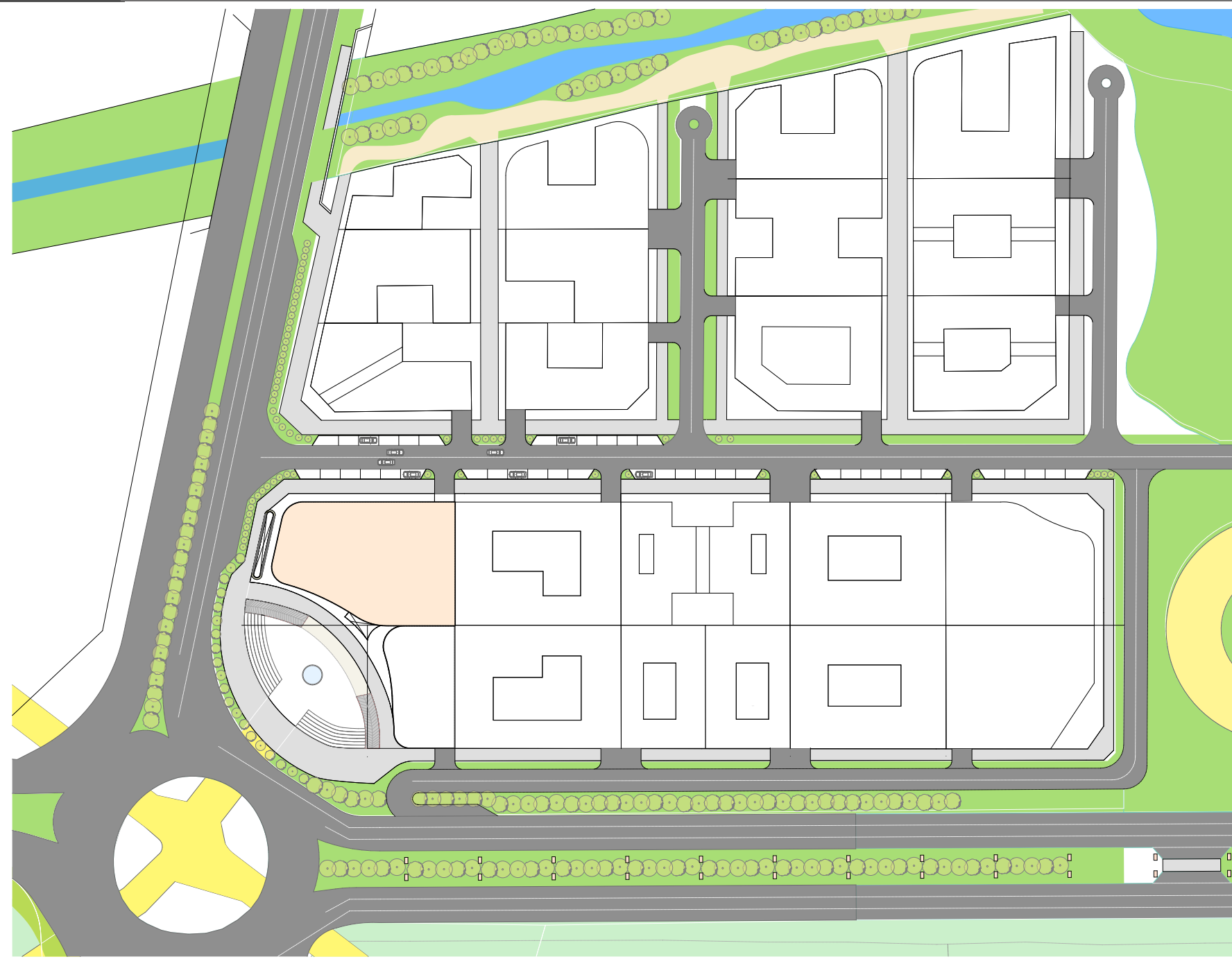
Tower Plinth area=

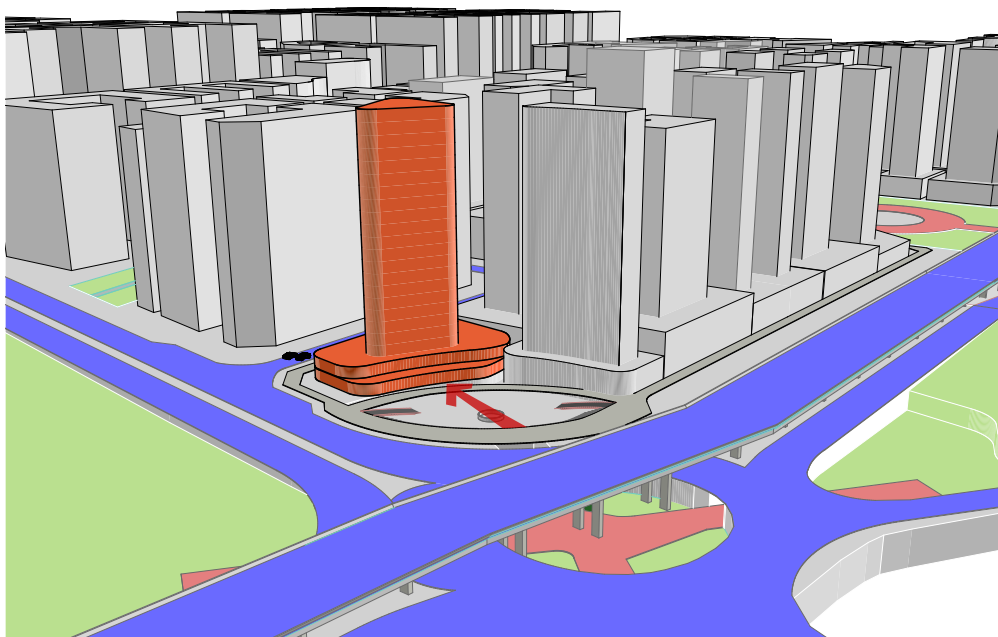
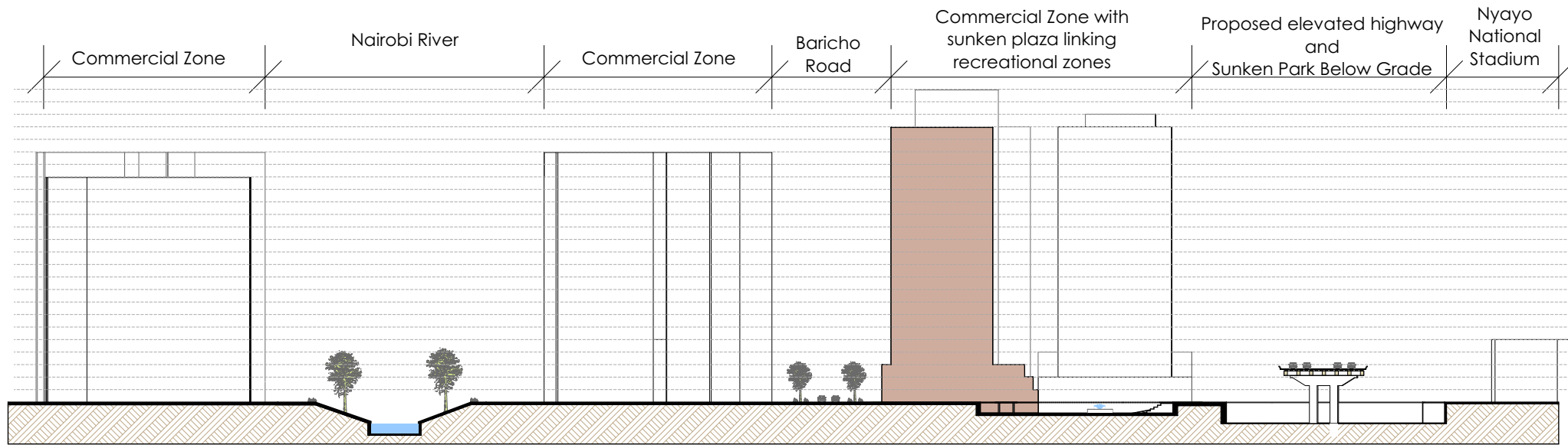
- 600m² (with common terracce)
- 500m² (without)

ACTIVITY ANALYSIS

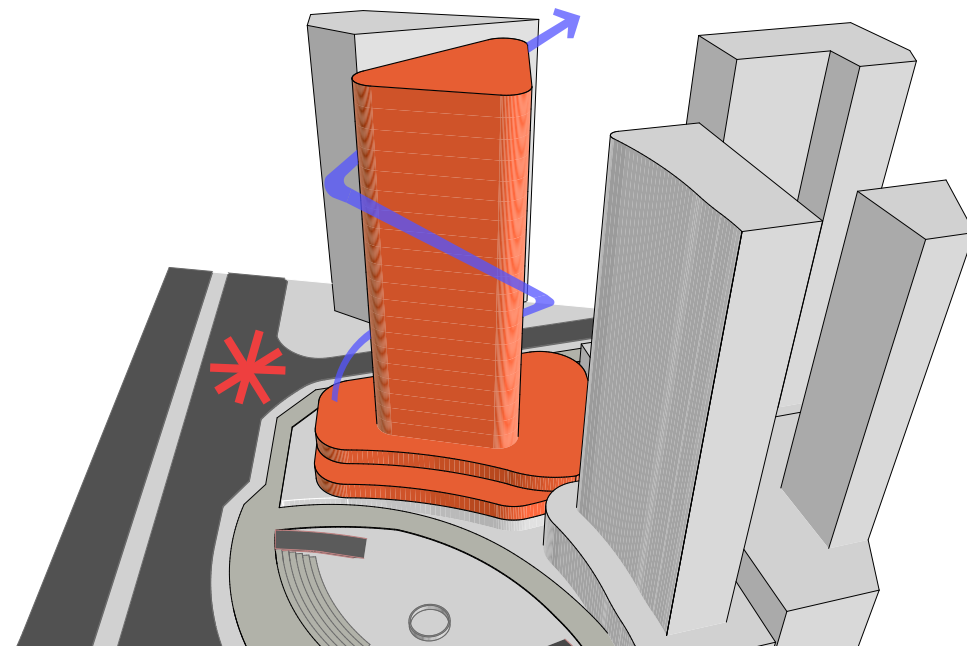
Activity Space	Provisions	Area (m ²)
Retail Stores	Mini mart Boutiques Departmental stores International brandstores Jewellery store Electronic store	
Total		800m²
Food Court	Eateries Dining Space	
		835m²
Common Podium Roof Terrace	Outdoor recreational space Outdoor Eatery Outdoor Meeting Space	
		1020m²
Offices	Open Plan office spaces Common terraces	
		1910m²
Serviced Apartments	Studio Unit One Bedroom Apartment Two Bedroom Apartment	
		3290m²

Activity Space	Provisions	Area (m ²)
Below grade restaurant	Service yard Eatery Kitchen	525m ²
Service Areas	Generator room Transformer room Switch Room Service Yard	130m ²
Basment Space	Circulation Space Parking Space Security Office Water Storage	1100m ² 1800m ² 35m ² 300m ²
Circulation	15% of total area	3235m ² 1260m ²
Grand Total		9640 m ²





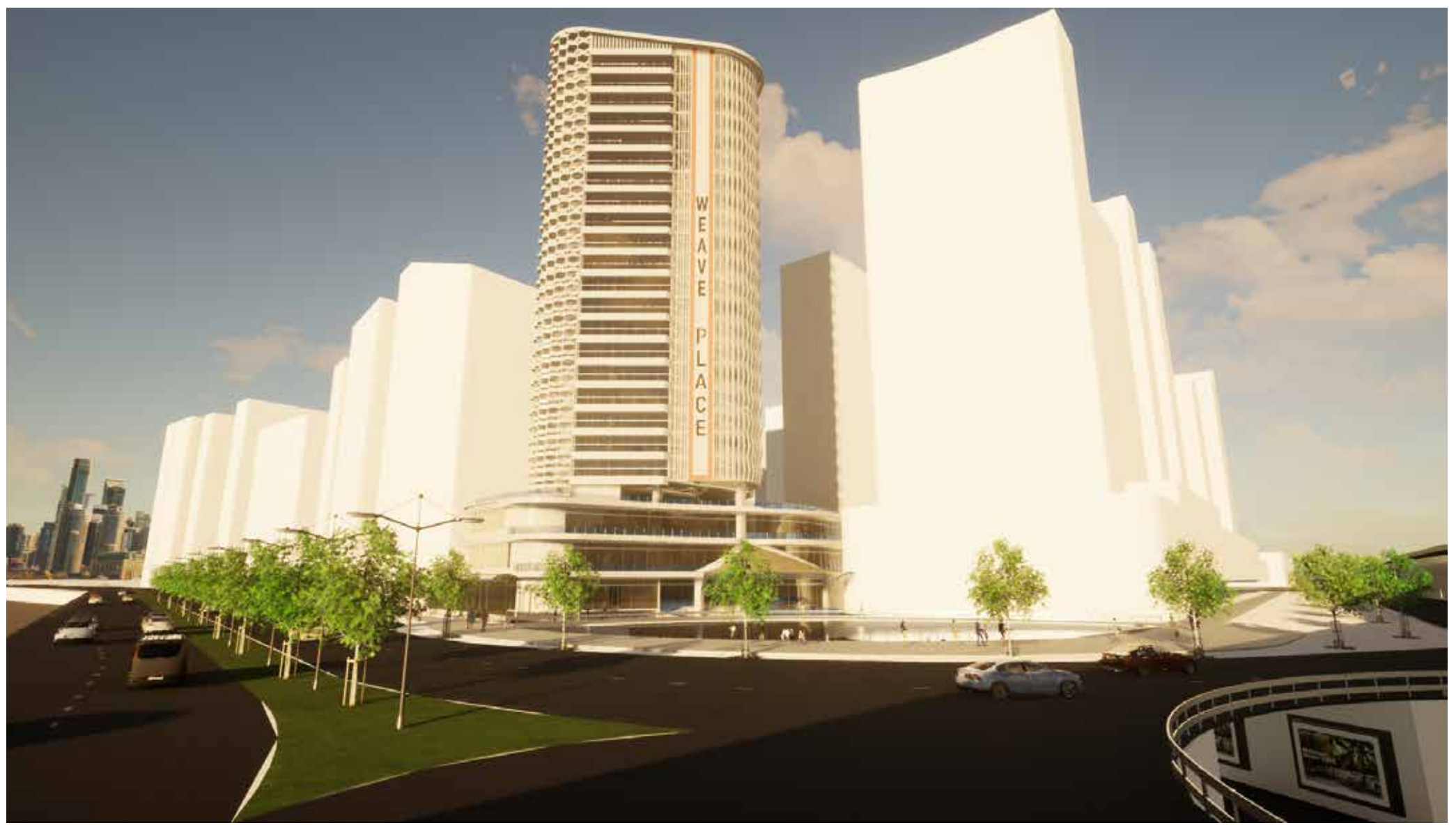
Form Concept Development illustrating on circulation and interconnection between the various zones



Organic form adopted in response to the dynamism of the context, being at a node

CHAPTER 4

SCHEMATIC DESIGN







Ramp up from below grade plaza

4,000mm wide pedestrian walkway channeling pedestrian circulation through the sector

Public plaza at entrance allowing for gathering and recreation

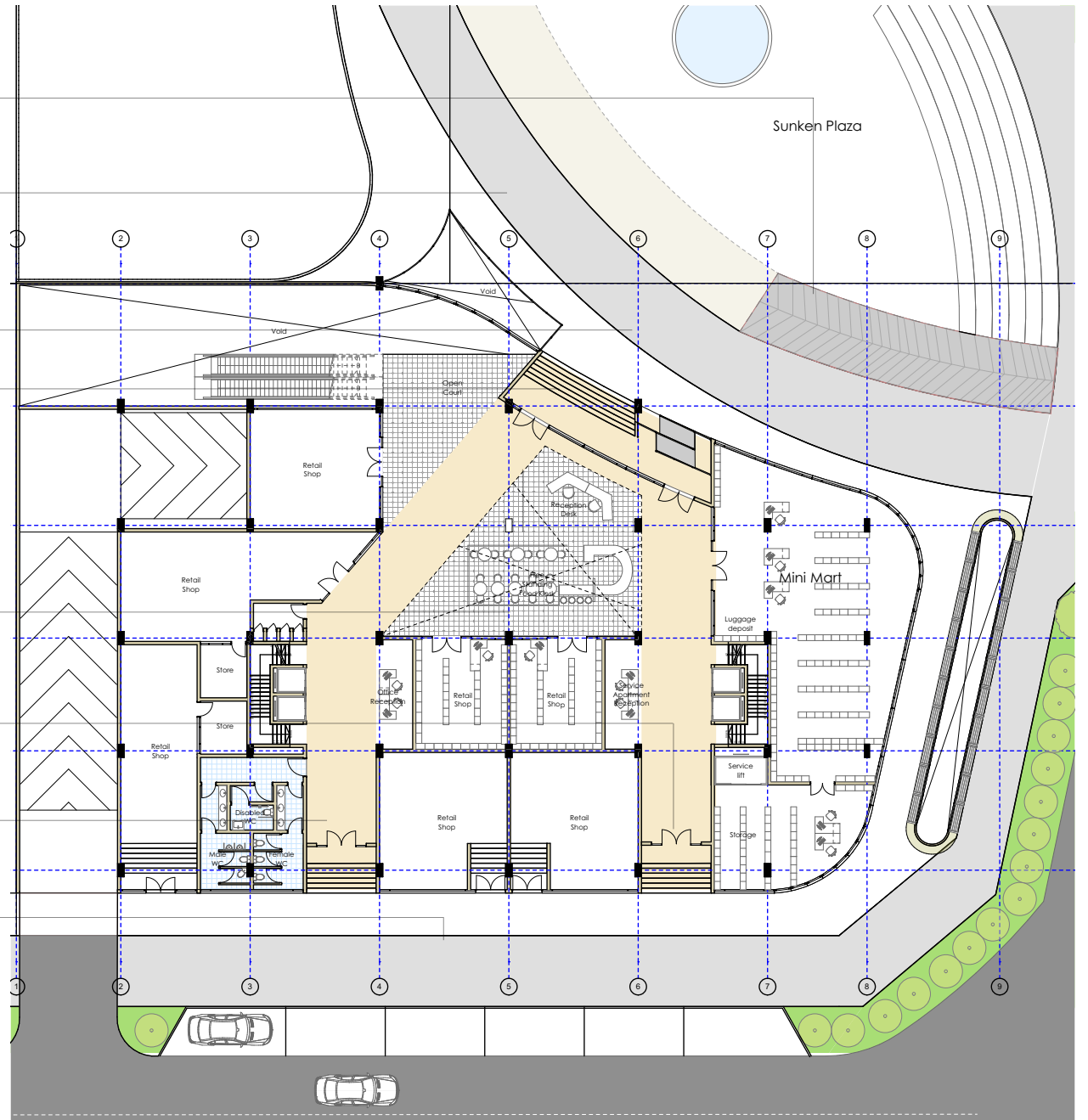
Access oriented to channel pedestrian traffic from below grade plaza and also in response to the corner Building steps raised by 1000mm to maintain visual connection, provide security and allow for sufficient ventilation to lower ground floor program

Open to sky court to provide natural lighting and ventilation

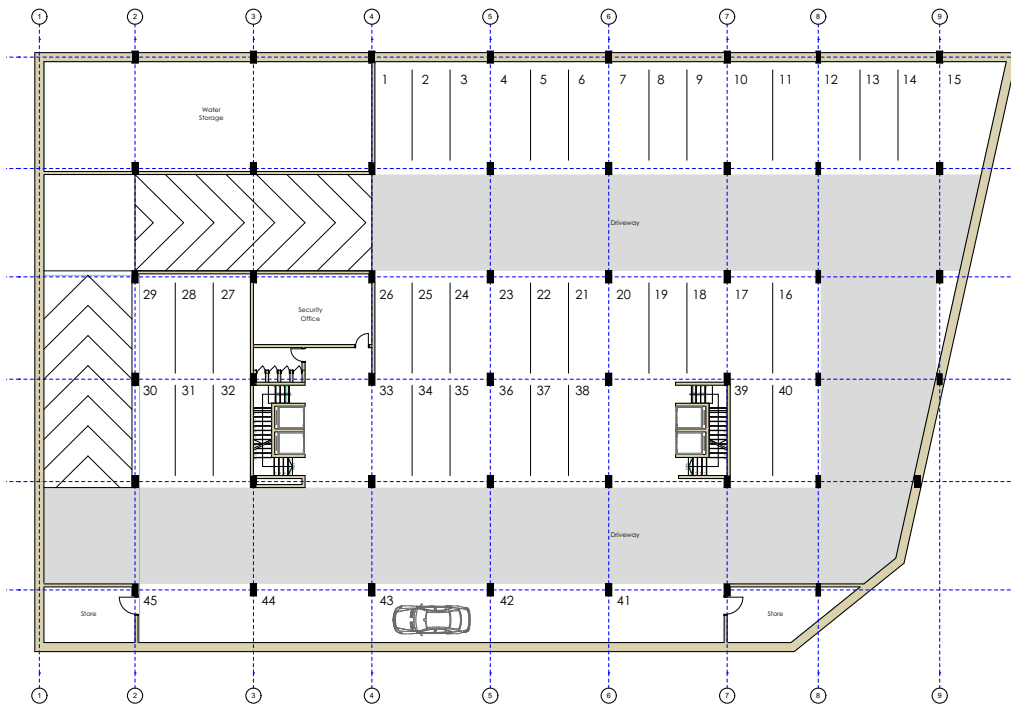
Private Serviced apartment Access, with access lift programmed to stop at podium and residential levels only

Arcade within building connecting pedestrians to the riparian reserve

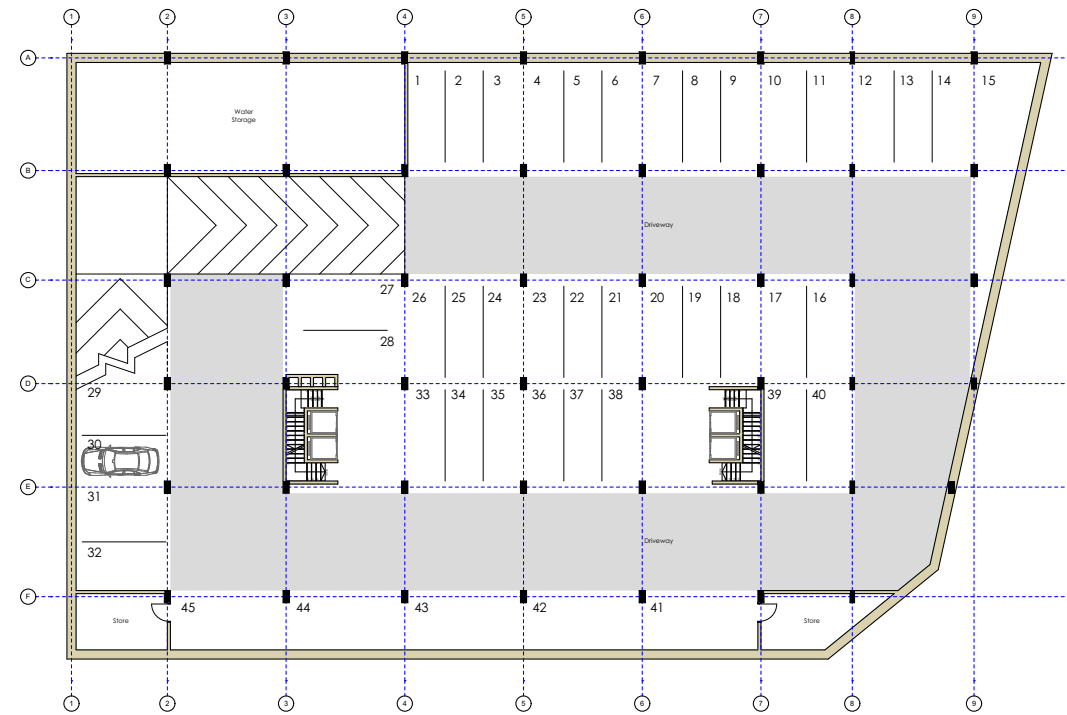
Large window displays allowing for transparency of ground floor



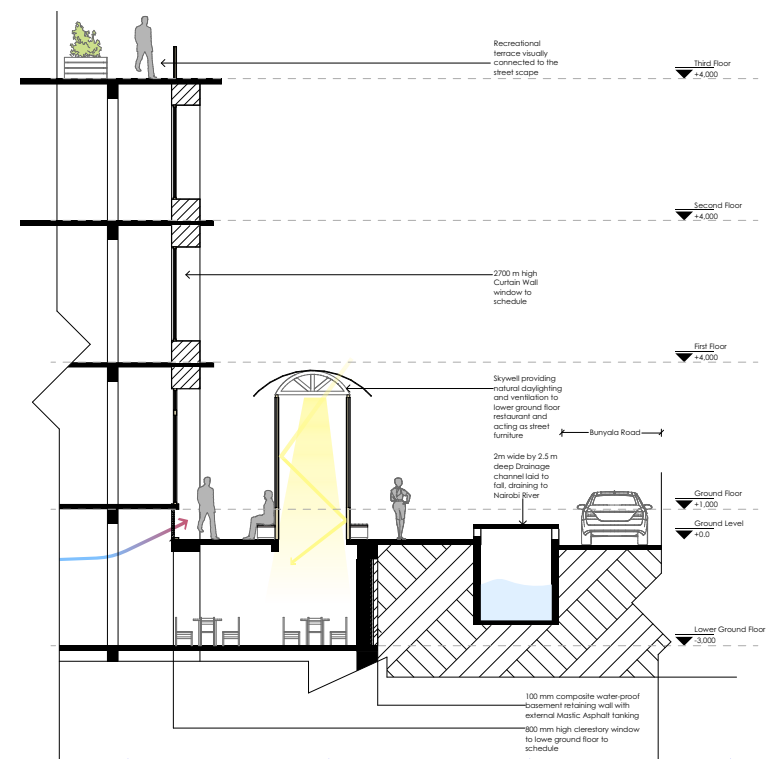
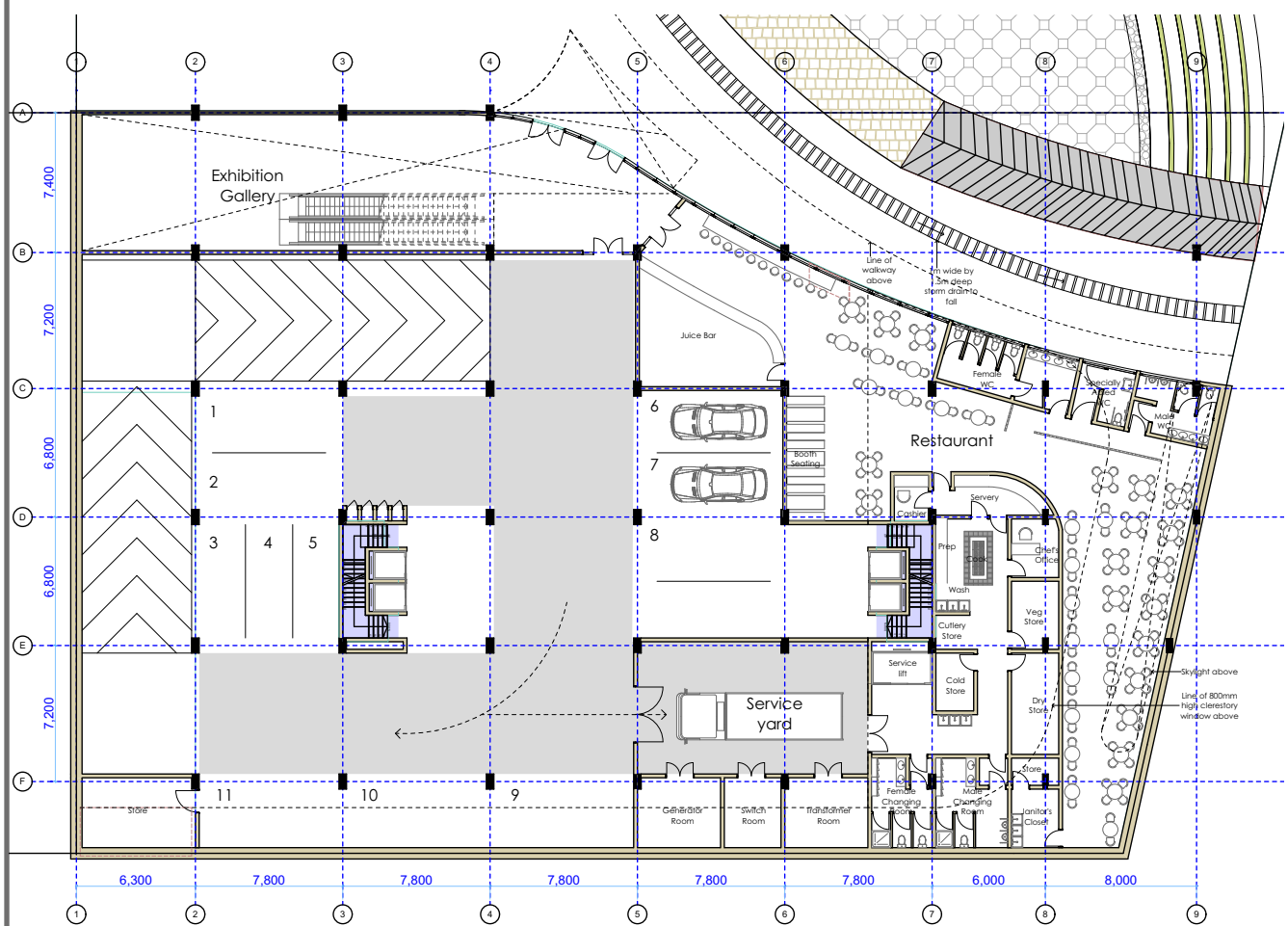
Ground Floor Layout

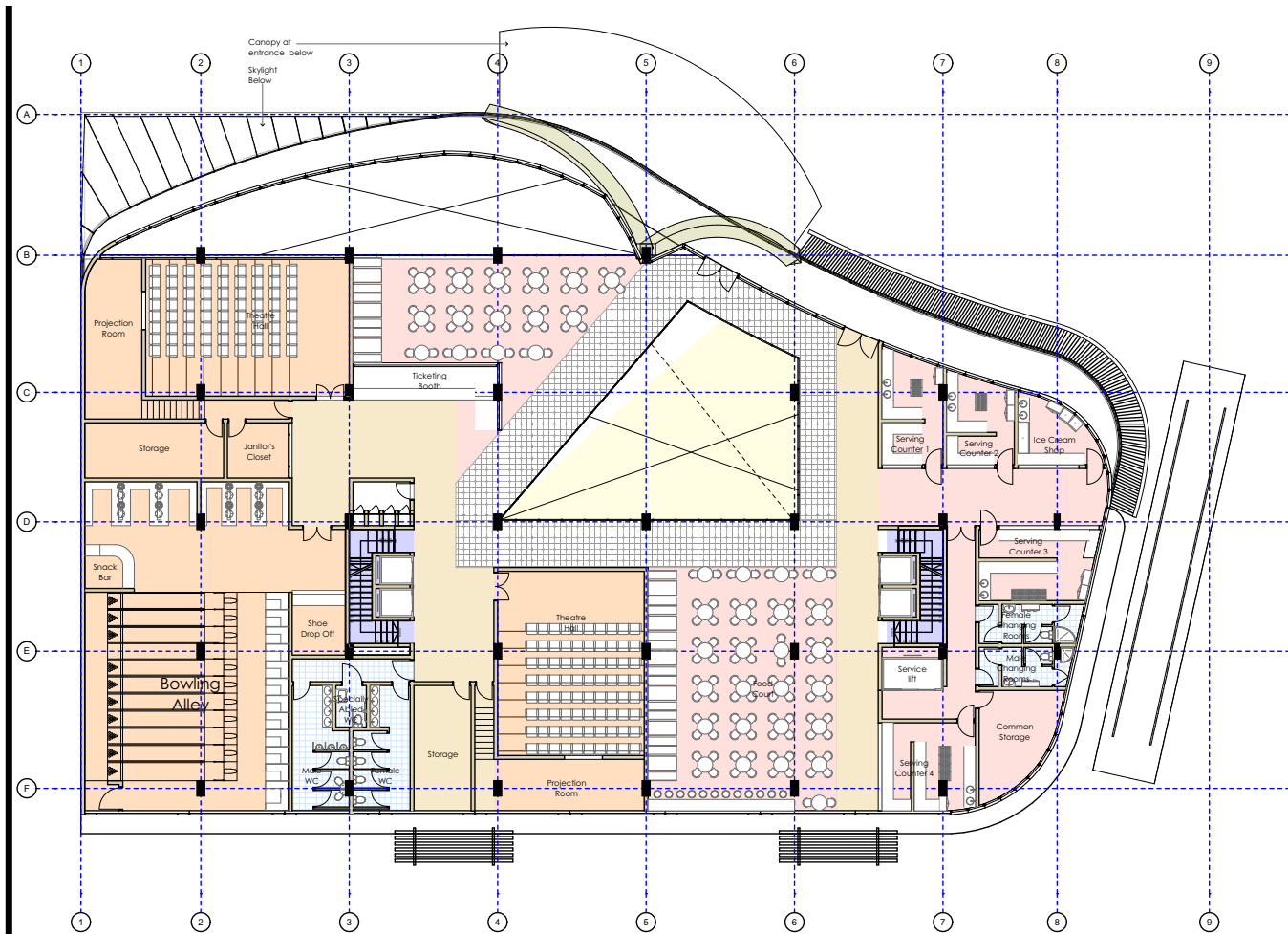


Level -2 Floor Layout
Scale 1:200



Level -3 Floor Layout
Scale 1:200

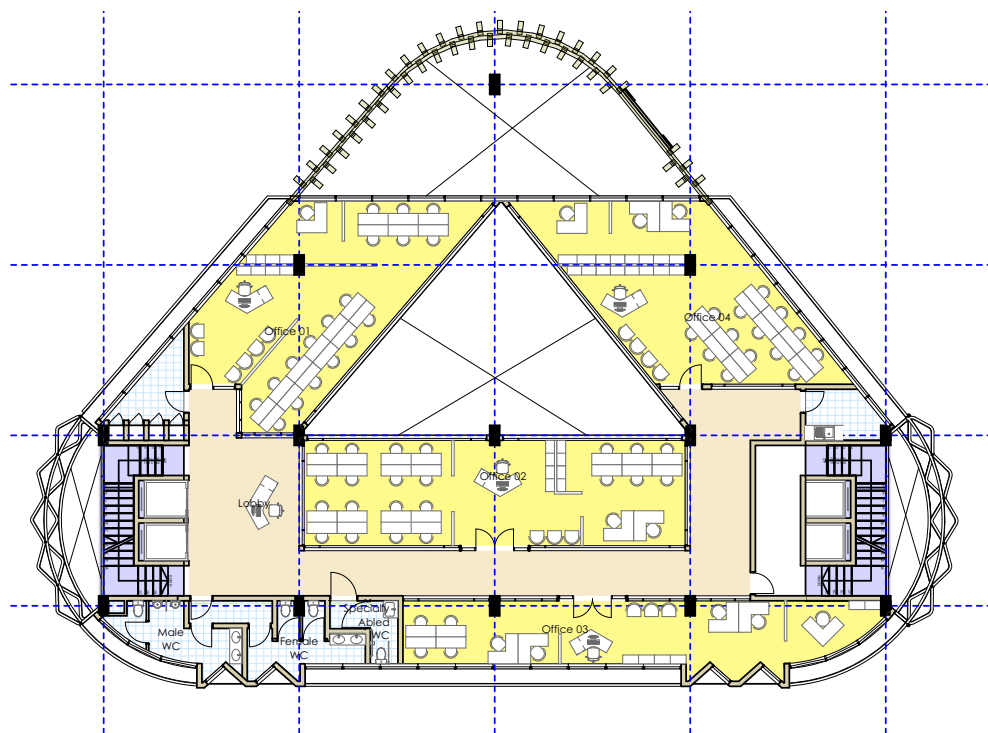




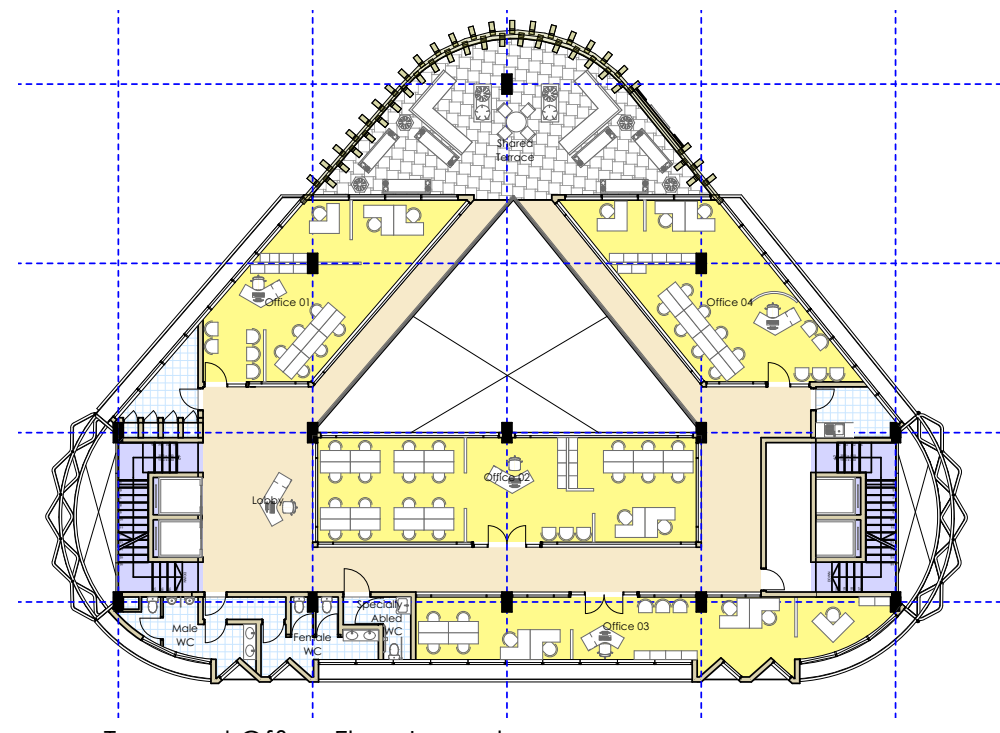
First Floor Layout
Scale 1:200



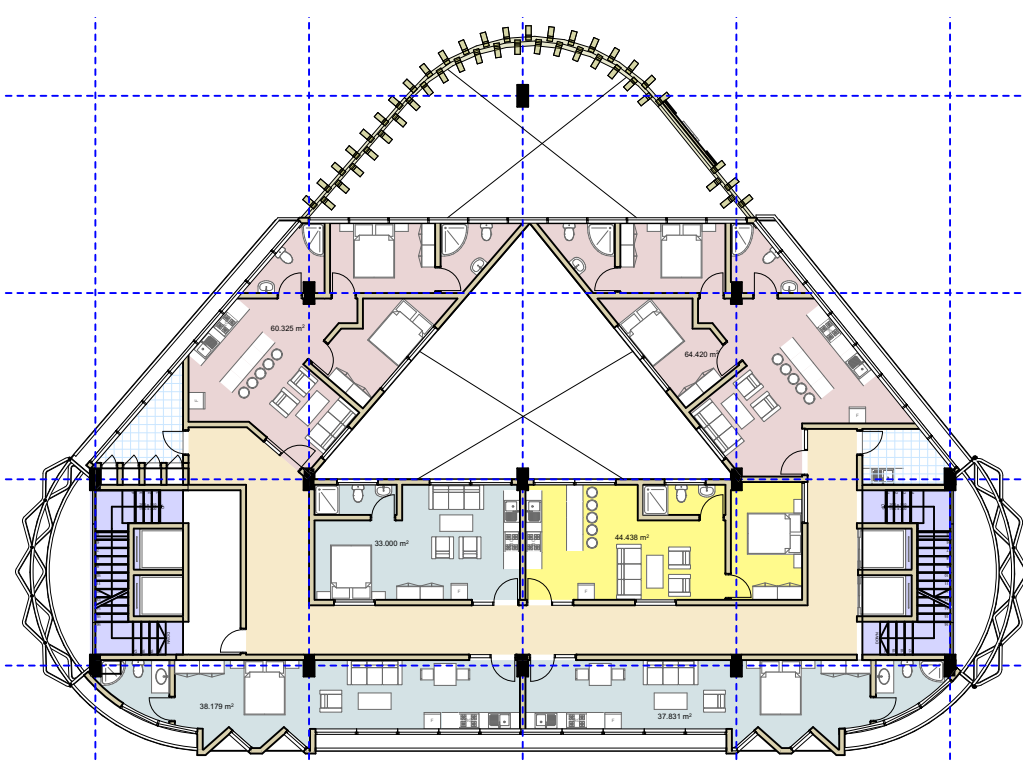
Exhibition plaza at lower ground floor access is naturally with a skylight and is visually connected to podium floors above, allowing for interactivity within the development.



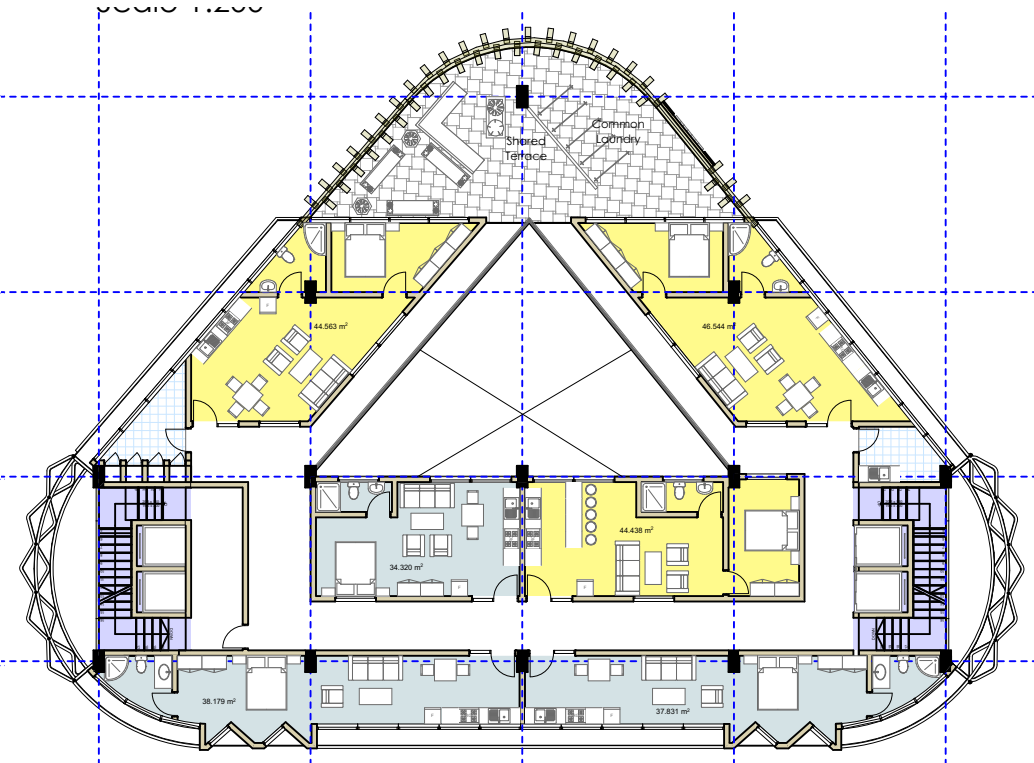
Typical Office Floor Layout
Scale 1:200



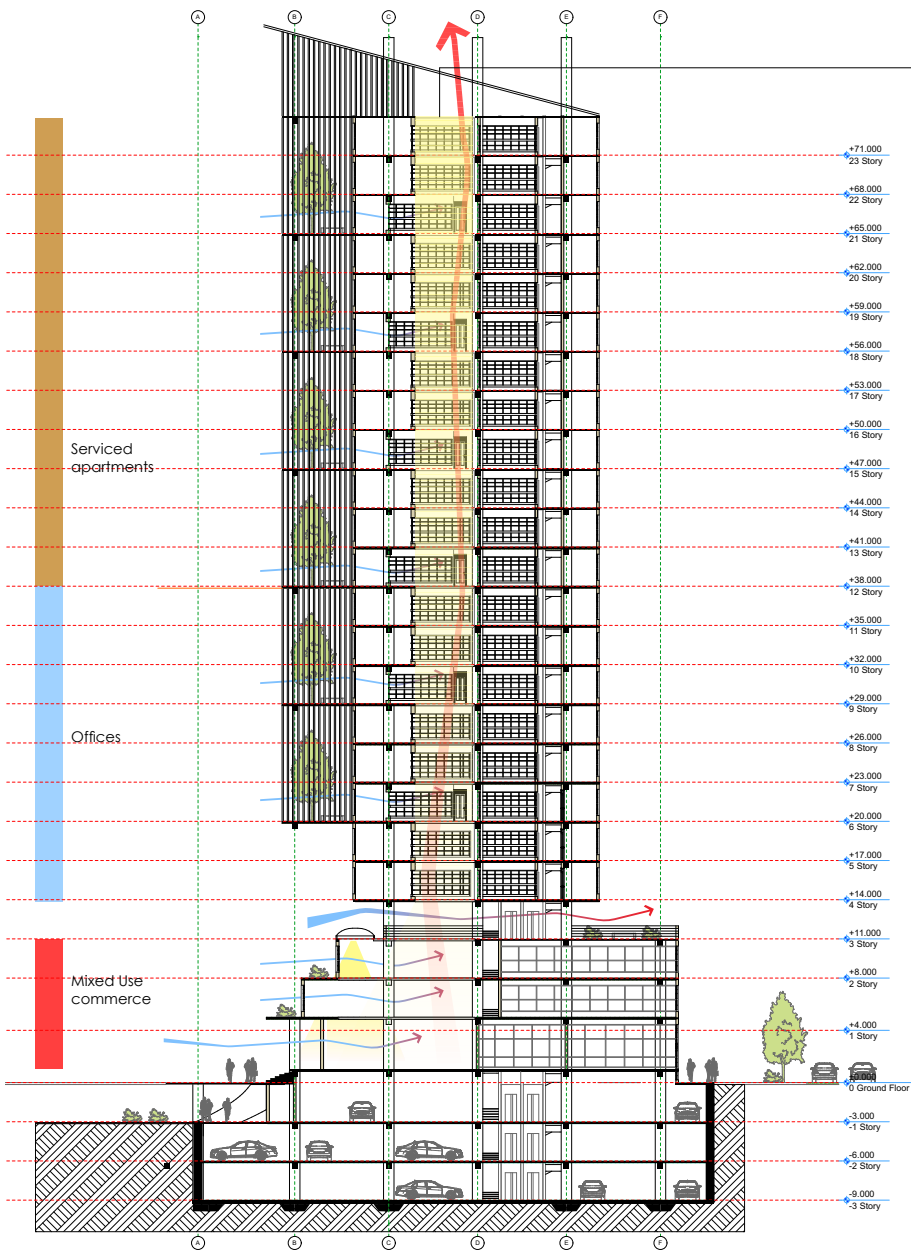
Terraced Office Floor Layout
Scale 1:200



Typical Residential Floor Layout
Scale 1:200



Terraced Residential Floor Layout
Scale 1:200



Open to sky

Green roof terrace to details

Stairs to details
Riser=150
Tread=300

Service Core

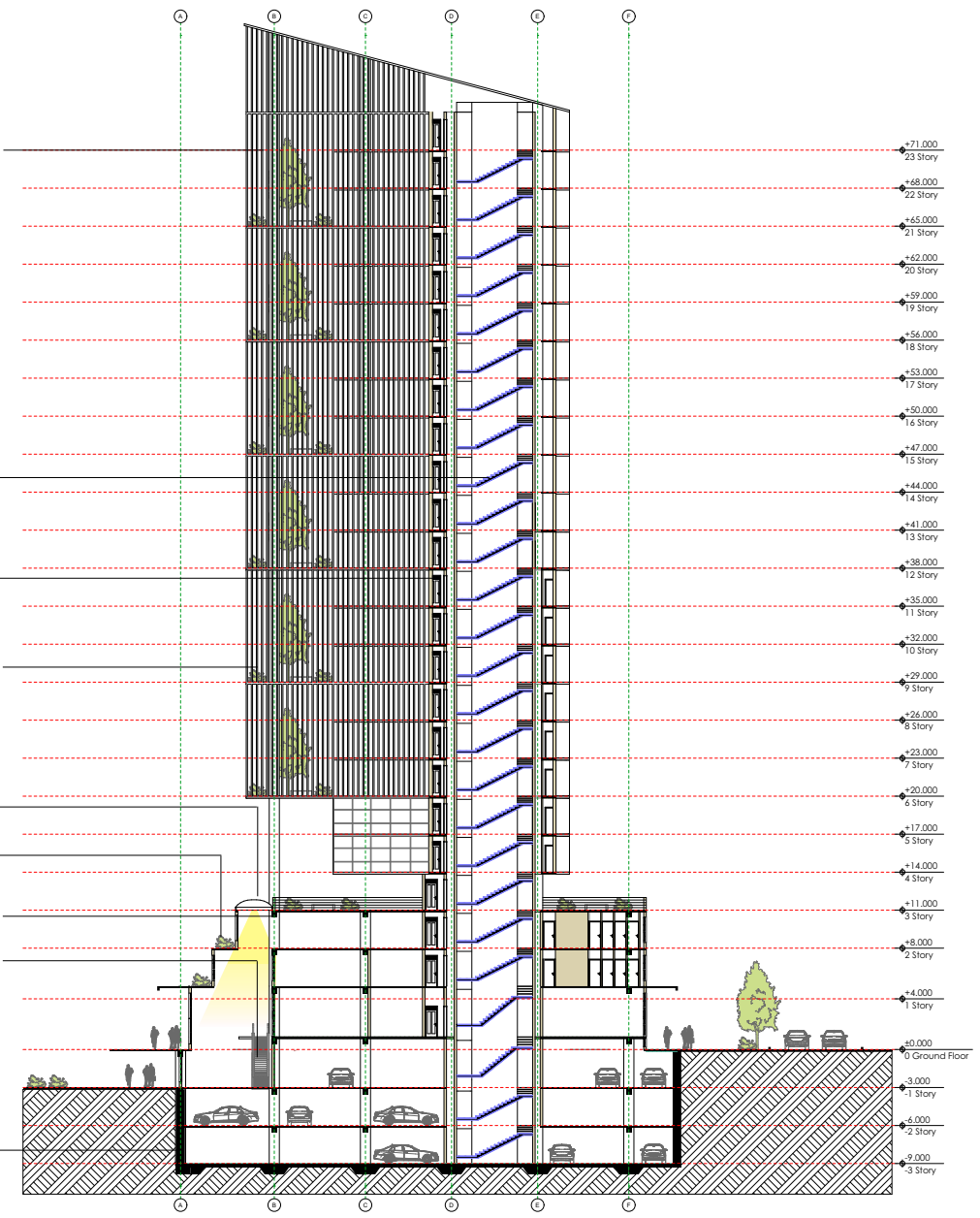
Alternated cantilever floor level allowing for lighting to atrium and ventilation

Skylight to details

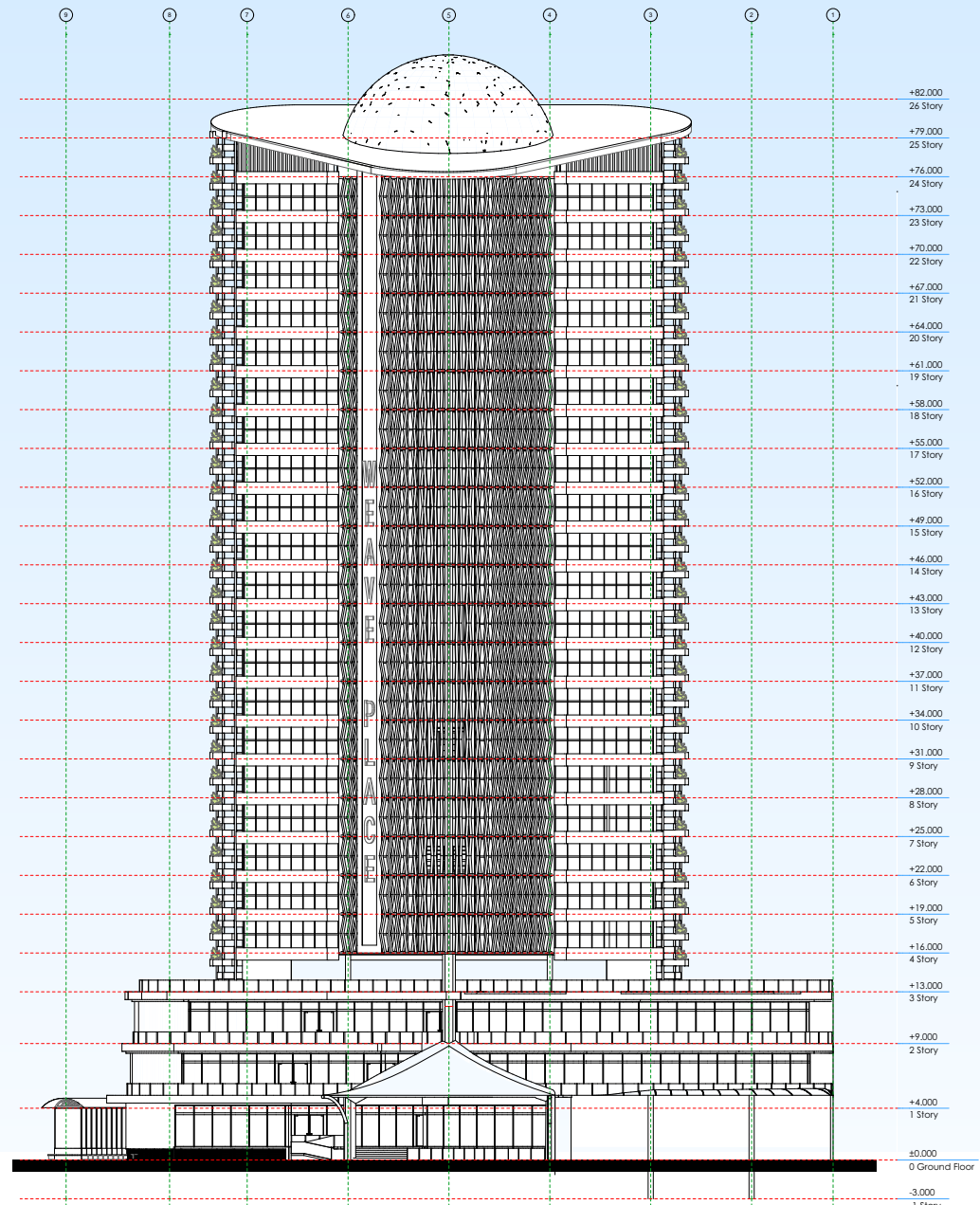
Cascading green terraces

400mm deep beam to SE's details
Escalator vertically linking lower ground and ground level
800x400 mm column on 1200x800mm pads to SE details

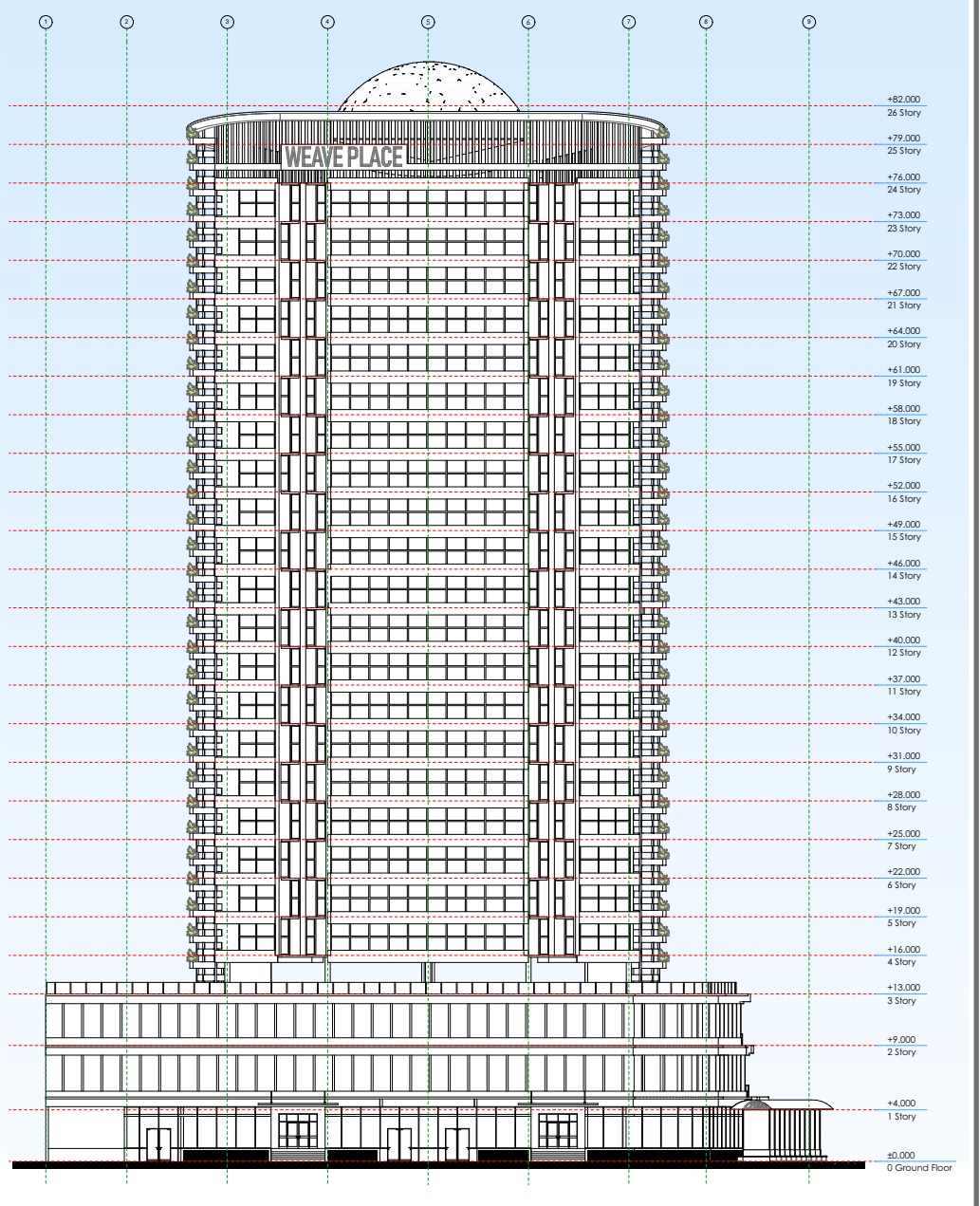
Section 01
Scale 1:200



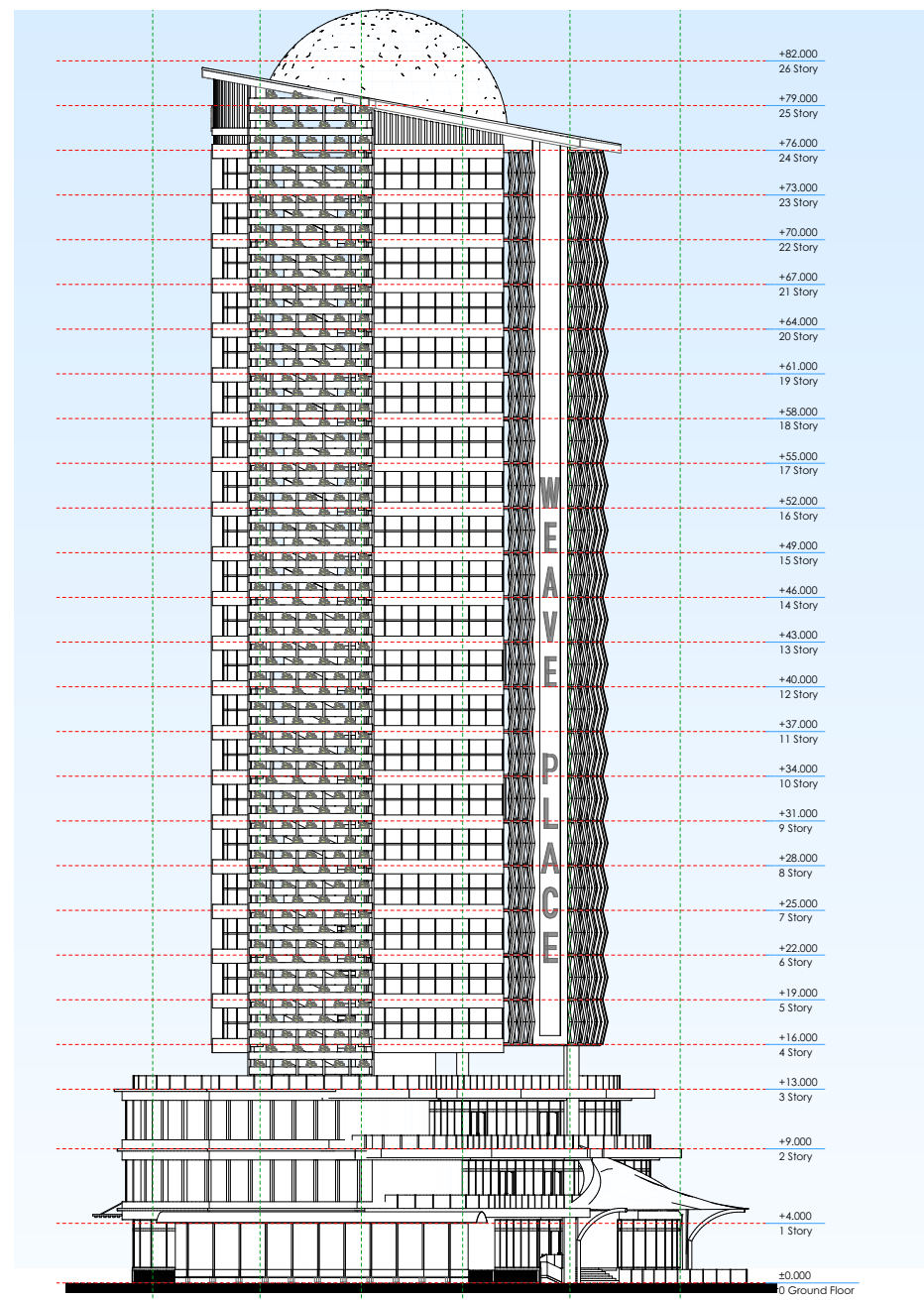
Section 02
Scale 1:200



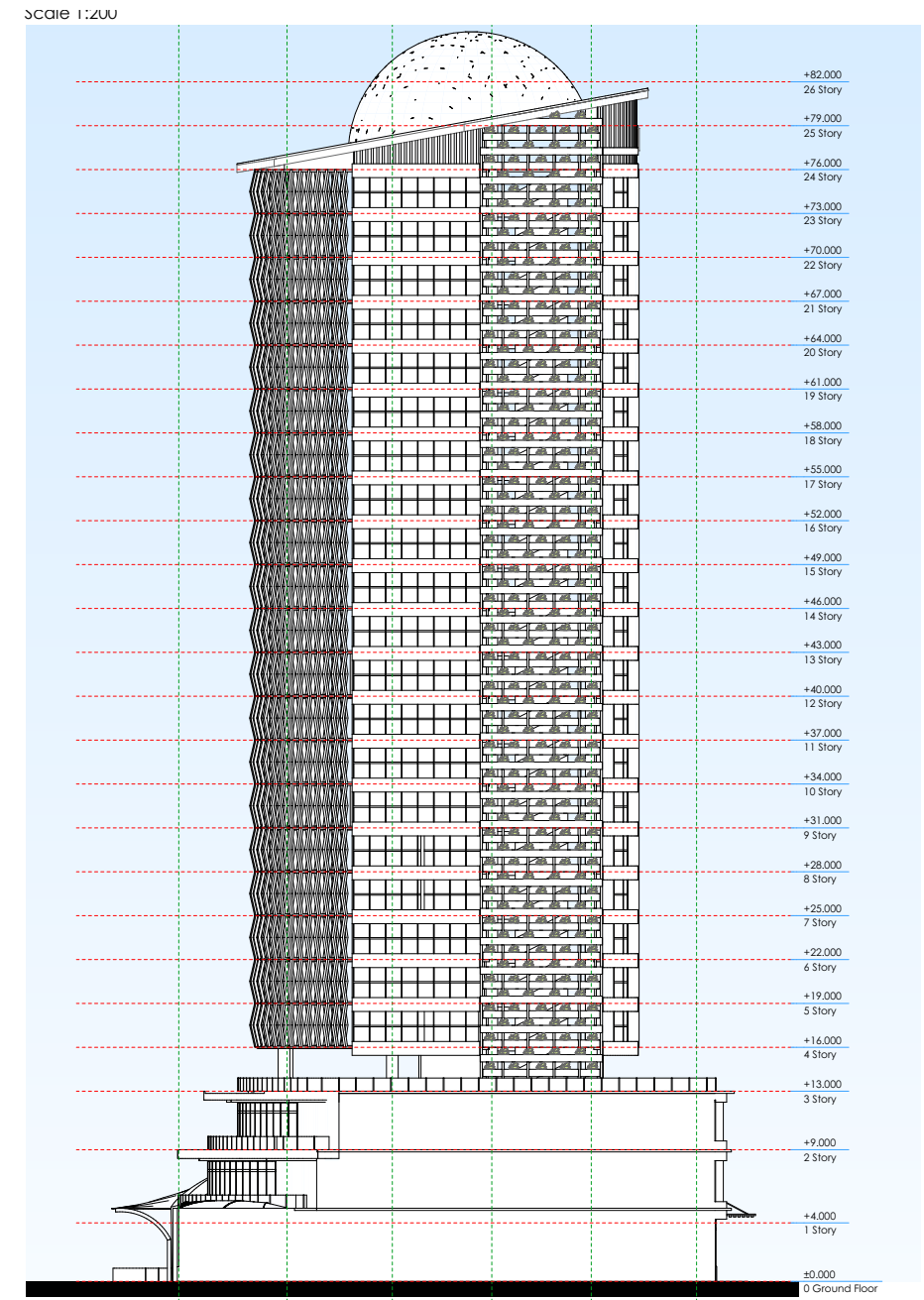
North Elevation
Scale 1:200



South Elevation
Scale 1:200



East Elevation
Scale 1:200



West Elevation
Scale 1:200